Community Hospitals – A Study in Resource Use, Decision Making and Patient Outcome

A thesis presented for the degree of Doctor of Medicine at the University of Glasgow

by

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Statement of Authorship

This thesis has been written and composed by myself. It has not been previously submitted for any other degree. It represents the culmination of twenty years of research and publishing in the field of community hospitals.

It was carried out with the aid of statistical help in completing the analyses described in chapters 4 and 7. The data collection instrument used in chapter 7 was principally devised by a group working under the auspices of the Information and Statistics Division (ISD) of the Common Services Agency, NHS Scotland. It was subsequently modified and refined during this study.

Chapters 5 and 6 were written following a six month sabbatical during which time I carried out the fieldwork and analysis of the qualitative study. This was supported throughout by a mentor and advisor who provided invaluable advice and support.

All the interpretations and conclusions presented in this study are my own.

This Thesis is dedicated to Christine for her love and support and to my family, Alison, Kathryn and Jennifer for having to put up with me during its writing and production

"It is not the beginning but the continuing of the same until the end that yields the true glory".

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List of Abbreviations

CH	Community Hospital
CI	Confidence Interval
CHIP	Community Hospital Information Project.
DGH	District General Hospital
GP	General Practitioner
P&K	Perth and Kinross
OR	Odds Ratio
ISD	Information & Statistics Division, the National Health Service in Scotland.
SHRUGS	Scottish Health Resource Utilisation Groups.
UK	United Kingdom

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Summary

This thesis examines the proposition that community hospitals are an undervalued health service resource particularly in regards to the care of the elderly.

It is known that the types of patient admitted for community hospital inpatient care are predominately, but not exclusively, elderly. There is a general lack of research on all aspects of community hospital functioning. There use is highly variable but we lack insights into why this is the case. There is little detailed knowledge around the complex mixture of medical and social factors involved which can provoke admission. Similarly little is known about the relationships between the care received and the outcomes of that care.

This thesis addresses some of these issues by means of three well defined but related studies carried out in the five community hospitals in Perth and Kinross. It also considers the proposition that only by addressing the educational and access issues surrounding community hospital care will it be possible to increase usage and deliver more appropriate care in the long term.

Several descriptive studies have been published on community hospital role and function suggesting that they can have significant part to play in the provision and delivery of community health care. (Cavenagh 1978; Grant 1984; Tucker 1987). Yet, despite these apparent endorsements, community hospitals have continued to function between the

conventional primary and secondary care pillars of the NHS without achieving widespread acceptance as significant service providers in a modern health service

Previous work by the author described the scope of community hospital provision in Scotland. The role of the community hospital in the provision of specific areas of care such as casualty services and the care of myocardial infarction has also been examined. Throughout these studies the educational issues surrounding the community hospital, both in terms of the needs of those working in them and the potential they offered as a resource for medical and nursing education, has been a recurring theme. The author has also critically examined their potential as a resource for medical student education.

Retrospective Study

A total of 3953 patients were discharged from Perth & Kinross community hospitals during the study period 1997-2000, of whom 76.1% were admitted by general practitioners, while the remainder were step-down transfers from the local DGH. During the period of the study the practitioners with community hospitals discharged between 18% and 47% all adult general medical discharges locally. This represented on average 35.5% of all over 65 general medical discharges.

There was no statistical difference in general medical bed usage between those practices with and without access to community hospitals. A strong positive association between age and sex adjusted community hospital usage and practice training status was identified ($p<0.003$).

There were negative correlations with other all other proxy practice quality measures, of which practice provision of minor surgery reached statistical significance ($p<0.005$).

The provision of structured chronic disease management clinics and minor surgery services may result in less time for involvement in community hospital work. However, community hospital development may benefit from ensuring that all practices using such units have training status. The practice re-approval process involved in achieving and maintaining training status needs to recognise the time, training and resource commitment involved. Such considerations should to be taken into consideration when planning the development of intermediate care services around community hospitals.

Qualitative Study

In depth interviews were conducted with a purposeful sample of general practitioners representing high, low, and average users of the five community hospitals. Twenty-seven practitioners from the ten practices admitting to the hospitals were interviewed. Secondary support was identical for all sites.

A qualitative analysis was performed to determine the factors practitioners considered important when making admission decisions. Results were presented to the study group for validation.

All admissions required adequate capacity in the community hospital system. Primarily social admissions were straight forward, requiring only adequate hospital, nursing and general practitioner capacity. More typical admissions involving social and medical need required

consideration of the professional concerns and the personal influences on the doctor as well as the potential benefits to the patient. A total of three primary and seventeen secondary influences were identified. A model suggesting how these factors might operate in different situations is presented.

Potentially appropriate community hospital admissions are sometimes not made because of a lack of available beds, insufficient nursing resource or pressure on the general practitioner's time. As the type of admission becomes more medically challenging, additional factors become relevant. The most significant are: the GP's concerns about possible inappropriate care in a DGH balanced against their own competence and confidence; the GP's attitude or motivation towards community hospital care; and the potential benefits of more intensive care or investigation.

Provided there is adequate capacity, the general practitioners perceived level of comfort is the prime determinant of which cases are admitted to community hospitals or referred to secondary care. Practitioners commonly consider borderline decisions in terms of their own comfort/ discomfort with retaining responsibility.

Prospective Study

The prospective study has attempted to establish the acceptability, reliability and validity of a simplified data collection instrument for administration by community hospital charge nurses. In using this instrument for a period of twelve months a dataset on 973 admission and discharge inpatient episodes was collected. A detailed analysis of the multiple factors affecting

a patient's journey from the community through the community hospital and back into the community again has been carried out. Though the level of active interventions delivered was relatively low there was a highly significant reduction in patient SHRUG assessed dependency between admission and discharge.

Multiple logistic regression was used to model the factors contributing to delayed discharge. Coveriates which might affect discharge were each considered in a univariate analysis. These variables which were significantly associated with delayed discharge were included in a multiple logistic regression model. Not all variables included in this model remained significant because of the relationships between the explanatory variables. Backward stepwise regression was used to arrive at a final model which included age, consultant referral, a care package and the prescription of hypnotics/anxiolytics on admission.

The implications of such a model for future research and on the complex interactions between health and social care are discussed.

Conclusions

1. Community hospitals in Perth and Kinross provide approximately half of the inpatient general medical care of the over 65 population in their catchment areas.
2. There was no evidence that this care was inappropriate either in terms of the transfer rates to district general hospital care or in the overall death rates.
3. There was no statistically significant difference in usage of inpatient beds between practices with and without community hospital access.

4. There was a strong positive association between age and sex adjusted community hospital usage and practice training status.
5. There were negative correlations with all other proxy practice quality measures, of which practice provision of minor surgery reached statistical significance.
6. Most admissions involved a combination of medical and social need. A total of three primary and seventeen secondary influences were identified as potentially impacting on the decision making processes involved in deciding whether a patient was admitted.
7. A data collection instrument relevant to the types of patients admitted to community hospitals was trialed and validated for use in a twelve-month prospective study.
8. Classification of patients according to their need rather than simply according to their medical diagnosis was a valid and useful means of describing community hospital admissions.
9. Though the level of active interventions was generally low there was a highly significant improvement in SHRUGS dependency scores between admission and discharge.
10. 12% of the patients experienced discharge delay. Multiple logistic regression was used to model the factors contributing to this phenomenon. Backward stepwise regression was used to arrive at a final model which included age, consultant referral, a care package and hypnotics/anxiolytics on admission.

Chapter 1

1 Introduction

1.1 Background

Since the 1920's a number of official reports have supported the concept of general practitioners admitting and looking after their own patients in local community hospitals.(Brotherston 1971; Dawson 1920; Department of Health 1974; Gillie 1963; Porritt 1962; Ritchie 1996; Tomlinson 1992). Several descriptive studies have been published on community hospital role and function suggesting that they can have significant part to play in the provision and delivery of community health care. (Cavenagh 1978; Grant 1984. Tucker 1987). Yet, despite these apparent endorsements, community hospitals have continued to function between the conventional primary and secondary care pillars of the NHS without achieving widespread acceptance as significant service providers in a modern health service. (Grant 1989; Ramaiah 1994).

Several reasons for the current situation have been suggested. There are serious problems of definition as to what constitutes a community hospital (Higgens 1993). There is no agreement on what type of care such units should provide or what their role should be (Department of Health 1974; Tucker 1987). Their lack of specialised services and the perceived economies of scale offered by the district general hospital, even though it can be argued that many hospital patients do not need such specialised services, are seen as major handicaps.(Higgens 1993; Russell et al. 1978). The lack of clear admission and discharge policies, as well as agreed outcome measures to assess the quality of care provided, have also been highlighted as significant problems. (McGilloway et al. 1994). Many general

practitioners do not see that they have the time or the expertise to become involved in inpatient care. (Hull & Jones 1995; Kernick & Davies 1977).

Proponents on the other hand, stress their strengths, such as continuity of care in accessible, informal surroundings and their ease of access for a patient's relatives and friends. (Jarvie 1990; Ritchie 1996; Tucker 1987). Other authors have highlighted the avoidance of inappropriate admissions to high technology district general beds especially of elderly patients and the importance of community hospitals in providing a unique level of intermediate care between primary and secondary care. (Aaraas, Kristiansen, & Melbye 1998; Baker, Goldacre, & Muir Gray 1986; McKinlay 1991).

1.1.1 The Remit of the Thesis

This thesis examines the effects on patients, practice and resource use when community hospital beds are available. It estimates the contribution that community hospitals make to the care of the rural population of Perth and Kinross. It compares and contrasts inpatient referral activity between practices with and without access to community hospitals.

The thesis analyses the decision making processes of general practitioners who admit patients to community hospitals. As part of this understanding a qualitative study on the general practitioners use of the community hospital is included. A model, incorporating the decision making factors involved, is proposed.

In order to further examine the reasons for admission and the subsequent outcomes of care a prospective observational inpatient study has been carried out utilizing a modified data collection instrument. The validity of this tool has been tested. The thesis attempts to gain

a clearer understanding of why patients are admitted to community hospitals and with what outcome.

The thesis examines the relevant literature to date in relation to community hospitals. It contains reference to the author's work in the field over the last twenty years and concludes with recommendations for further research activity.

1.1.2 Defining the Community Hospital

There are no agreed definitions on what constitutes a community hospital. This makes for considerable difficulties in assessing and establishing the accuracy of published information. In the international literature, the Medical Subject Heading (MESH) "*hospital, community*" refers to a neighbourhood hospital with a full range of services. Within the United Kingdom, the term refers to a unit offering a form of intermediate care, providing services that do not require the full range of high technology services available within a district general hospital but that are beyond the scope of services that are normally available in primary care. (Steiner 1997).

Community hospitals in the past have been called cottage hospitals, general practitioner hospitals and neighbourhood hospitals. (Higgens 1993; Tucker 1987). The term community hospital was first suggested by Rue in 1968 and developed out of work done within the Oxford region.(Rue 1974). The Oxford group made the important conceptual leap in seeing community hospitals as an extension of primary care services, not as a peripheralisation of secondary care services in the community. Rue proposed that community hospital care should be understood as a "style of care" rather than simply a

residential facility providing a range of inpatient services. This style incorporating close collaboration with social services, voluntary organisations and other local agencies.

The description of hospitals in terms of bed numbers and classification is often of limited value as this usually conceals an enormous diversity of provision and performance. (Higgens 1993).

It is possible, however to build on the work of other authors and define community hospitals generically. (Department of Health 1974; Jarvie 1990; Steiner 1997; Tucker 1987). Various elements integral to the community hospital in the UK have been identified:

1 **A Provider of Inpatient Care**

- For patients who do not need the specialist services of the district general hospital. (Bainton 1992; Ritchie 1996; Tucker 1987).
- Who need the medical care of a general practitioner but not necessarily of a consultant (Aaraas, Fylkesnes.K., & Forde.O.H. 1998; Treasure & Davies 1990).
- Who need more nursing care than can be conveniently provided at home (Hopkins 1984).

2 **A Provider of Outpatient Services**

- Inpatient services and where appropriate outpatient, day care, minor surgery, obstetric and continuing care services. (Goldacre & Gatherer 1977; Tucker 1987).
- Rehabilitation services including physiotherapy, occupational therapy and speech and language services. (Tomlinson et al. 1995).
- A limited range of diagnostic facilities usually of a "low technology " nature. (Tucker 1987).

3 **A Community Resource for Other Groups and Agencies.**

- Where the local district general hospital can transfer patients for rehabilitation and post-operative care. (Higgs 1985).
- Where " nurse led" treatment with medical support can take place. (Pearson, Punton, & Durant 1992).
- Where hospital consultants can provide care in close collaboration with their general practitioner colleagues. (Higgens 1993).
- Where social service and voluntary agencies can participate in multi-agency, multidisiplinery care (Ashworth, Nafisa, & Corkery 1996; Higgs 1985).

4 **As a Provider of Safe, Appropriate and Clinically Effective Care** .

- The level of care delivered must be to a standard which is compatible with a provider of health care in a modern health service. (Higgens 1993).

Steiner defined a community hospital as: *"a hospital or unit, providing a range of health care services, facilities and resources to a local community, medical care is predominately provided by local GPs in liaison with consultant colleagues and the wider multidisciplinery team as appropriate".* (Steiner 1997).

Ritchie suggested a pragmatic and workable definition of a community hospital in the United Kingdom (Ritchie 1996):

"A local hospital unit or centre providing an appropriate range and format of accessible health care facilities and resources. These will include inpatient and may include outpatient, diagnostic, daycare, primary care and outreach services for patients provided

by multidisciplinary teams. Medical care is normally led by general practitioners in liaison with consultant, nursing and paramedical colleagues as necessary. Consultant long stay beds, primary care nurse-led and midwife services may also be incorporated". Though necessarily broad, this definition is used throughout this thesis, reflecting the range of services that may be provided by community hospitals.

It is recognised that community hospital definition is a problem and has in many ways held back research. However, we should remember that Karl Popper cautioned against a consuming search for perfect definitions in science, arguing that this might cause the researcher to lose sight of the aims of the research. (Popper 1959).

"The clinging notion that if we are to have a worthwhile discussion we need first to define our terms is self-contradictory. Every time we define a term we have to introduce at least one new term into the definition, otherwise the definition is circular ... And so we are launched into an infinite regress".

The definition of community hospitals is less important than the need to carry out research into their use and function.

1.2 Summary of Previous Studies on Community Hospitals

A search of Medline and BIDS Embase from 1966 to 2001 using "*community hospitals"* and *"general practitioner hospitals*" as the main subject headings" generated 1100 and 16 references respectively. Using a search strategy which focused on the sub headings of *"organisation and administration*", *"supply and distribution*" *"statistical and numerical data*" *"standards*" "*trends"* and "*utilization*" a total of 682 references were generated. Of

these 622 originated in the USA and were excluded on the grounds that a community hospital in the USA refers to a small general hospital with permanent facilities and organised medical staff providing a full range of hospital services primarily to a neighbourhood area. Such a definition is not compatible with the United Kingdom model (see above).

Fifteen references originated from Australia and New Zealand, 4 from Finland, and 41 from the United Kingdom. It was decided to exclude Australian and New Zealand references as it was clear that these hospitals could also be regarded more in keeping with the American small district general hospital model. However the community hospital in Finland has many similarities in size, function and usage with the United Kingdom community hospital model. (Jones 1987). For these reasons it was decided that the work of Aaraas and his colleagues in the Finnmark studies would be referred to in this thesis. These 45 references from the UK and Finland are listed in Appendix 10.1.

These references were cross-referenced against *"The Community Hospital Association (C.H.A.) Bibliography and Resource File"* for the same period. This organisation exists to promote the community hospital concept throughout the UK. Currently more than 400 community hospitals are registered members (private communication). The C.H.A. community hospital bibliography, for the period 1966 to 2001, contained 452 references. 3 references out of 45 obtained from Medline searches were found to be absent from the C.H.A. database. In two out of the three references the word "*community hospital*" or "*general practitioner hospital*" did not appear in the title of the paper. The other reference omitted was a published letter. The discrepancy in the number of references generated from the electronic databases and the C.H.A. bibliography requires further comment.

The C.H.A. bibliography was reviewed. It was estimated that 148 references could be classified as: "*General reviews of community hospital activity including descriptive observational studies*". 72 references were classified as: *"Official government, health authority or college reports on hospital policy and activity"*,. 29 references were classified as relating to specific observational reports on *"Community hospital service provision"* including cancer care, thrombolysis, care of the elderly, surgical services and acute medical care.18 references were related to *"Obstetric provision*" and 15 concerned "*Reviews of hospital services including district general hospitals and community hospitals*" and 13 were on "*Hospital at Home Provision*". The remaining 59 references covered a wide range of topics including "*Children's services*", "*Day care*", " *Education*", *"Cost effectiveness", "Social services"* and *"GP roles and attitudes".* There were 8 references to community hospitals abroad and 4 reports from "Hansard". There were 8 references where the author could not determine the relevance to community hospitals.

The C.H.A. exists to promote the development of the community hospital within the United Kingdom. It has promotional as well as educational functions. The majority of references it cites do not appear in peer reviewed journals. i.e. government and health authority reports, letters from the popular press and official parliamentary reports. When references from this bibliography have been used they are included in the main bibliography of the thesis. (Appendix 9).

Additional searches on the Cochrane, King's Fund and National Research Register databases found no community hospital studies that were not included in the above. A

search commissioned from the library of the Royal College of General Practitioners also failed to add any significant new references.

1.2.1 Literature Review Bias

Sackett (Sackett 1979) defines bias in analytical research as "*any process at any stage of interference which tends to produce results that differ systematically from the truth*". He catalogued 35 kinds of bias that potentially could arise in sampling and measurement in case-control studies. Though these studies were not case controlled some potential sources of bias require comment throughout this thesis.

It is recognised that relevant literature is scarce and in general open to serious criticism. Where it does exist it is often dated and subject to bias by being retrospective and descriptive.

The author has had to guard against including references simply for the sake of having reference material. The relative small numbers of researchers in the field may, because of their prominence, be distorting findings through their own biases. Some of the writers in this field could be criticised on the grounds of their "enthusiast" status. This may aggravate the tendency for positive result bias.

By excluding the American 'community hospital' literature it is recognised that certain useful papers might have been omitted. However, a decision was made that studies should only be included if they came from comparable units. If the literature review had included North American 'community hospital' studies then very distorted comparisons with UK community hospitals would have resulted. The Finnish literature has been included on the

basis that these hospitals are close in size, function and geographical distribution to the average UK community hospital.

It is up to the reader to judge how this lack of supporting literature has affected the quality of research contained in this thesis.

1.3 The Community Hospital Dimension

It is difficult to give exact numbers of such hospitals in the United Kingdom owing to the problems of definition. However, it has recently been estimated that there are approximately 470 community hospitals in the UK containing 8457 general practitioner beds and 10,122 consultant led beds. (Seamark et al. 2001). Grant identified 64 such hospitals in Scotland. (Grant 1984). Around one in 7 general practitioners have admitting rights to UK community hospitals. Services such as physiotherapy, occupational therapy, speech therapy and chiropody are provided in over 75% of hospitals. Consultant outpatient clinics and minor injury units were present in 66% and 70% of hospitals respectively. Day care occurred in 77% of hospitals while maternity services were present in 17%. (Seamark, Moore, Tucker, Church, & Seamark 2001).

1.3.1 The Community Hospital in Scotland

The last comprehensive review of community hospital services in Scotland was undertaken in 1983. (Grant 1984). In a postal survey of 64 hospitals the author estimated that they contained 3.3% of all available staffed beds in Scotland, 13.5% of the resident population had access through their general practitioner to initial hospital care and 14.5% of general practitioners had admitting rights. In a more recent survey by Gill in the Borders region, (Gill 1994) it was estimated that in five local community hospitals acute conditions

accounted for 55% of admissions, convalescence 8.5%, terminal care 12%, long stay 8.5%, assessment 8%, and respite care 8%.

1.3.2 Current Influences on Hospital Inpatient Admissions

General practitioners (GPs) have a considerable and legitimate interest in the location, configuration and the quality of care delivered in hospital. The GP expects the admitting physician to be sufficiently skilled to instigate immediate therapy for common emergencies and to recognise the need to access high level skills and facilities when required. Demand has increased with major changes in the way illness is dealt with and increasing pressure for general practitioner to refer to specialist secondary care. (National Association of Health Authorities and Trusts 1994; Office of Population Censuses and Surveys 1995a). The reasons for this are complex, they include increasing numbers of elderly patients with decreasing social support and increasing social deprivation.(Kendrick 1996), (Office of Population Censuses and Surveys 1995b). There is also an increased expectation of care resulting in the by passing of the general practitioner with self-referral to the acute hospital. (Duffy et al. 1998).

Over the last fifteen years there has been a continuing and steady rise in the number of acute admissions to hospital. (Capewell 1996; Donaghy et al. 1997; Royal Colleges of Physicians of Edinburgh and Glasgow 1999). It is predicted that the rise in the number of elderly patients will continue especially the very elderly who are the largest user of hospital services.

The appropriateness of these emergency admissions to hospital has been the subject of considerable research interest. It has been suggested that as many as 30% of acute medical

admissions are inappropriately admitted to acute units. (Duffy, Bain, Neville, & Staines 1998; O' Neill & Pearson 1995). Anderson et al found that only 38% of bed days were required for patients considered to have medical nursing and life support reasons for requiring a bed in an acute general hospital. (Anderson et al. 1998). Other reported studies have estimated the rate of inappropriate acute admissions as ranging up to 25%. (Anderson et al. 1988; Tsang & Severs 1995; Victor & Khakoo 1994). It has been proposed that these patients could have been more appropriately managed in a 'lower tech' environment. (O' Neill & Pearson 1995). It is recognised that appropriateness is contentious and value laden and cannot be considered in isolation from patients and carers views. (Capewell 1994).

This continuing rise in admissions to acute general hospitals, with the resultant increasing difficulties in getting patients admitted as bed availability declines, is a growing problem for all health service providers. (Capewell 1996; Royal Colleges of Physicians of Edinburgh and Glasgow 1999).

The community hospital has been considered as one of the possible alternatives to acute hospital admission (Baker, Goldacre, & Muir Gray 1986; (Coast et al. 1995). It is clear that social factors such as lack of home support are important considerations in a significant proportion of community hospital admissions. Whether this is inappropriate in a low technology community setting where alternatives may not be so readily available is a matter for some debate. (Tomlinson, Raymond, Field, & Britten 1995; Tucker 1987). Some have suggested the community hospital as mainly a provider of social support and day care in the community with a limited inpatient medical role. (Ramaiah 1994). Others believe it

can play a more significant medical role. (Baker, Goldacre, & Muir Gray 1986; McCormack 1993; Ritchie 1996).

It has been stated that the type of hospital care offered by a community hospital is not acute hospital care in a community setting. (Rue 1974; Tucker 1987).. There are many reasons for this including resources available, the training and experience of staff, and the appropriateness of care. However studies have indicated that the availability of community hospital beds can diminish a practices use of district general hospital beds. (Aaraas 1995; Baker, Goldacre, & Muir Gray 1986; Hine et al. 1996).

Are such findings valid in terms of appropriateness of patient care and outcome? Are the findings transferable between different practices and locations? The potential implications for patient care are substantial in the context of a service in which it would appear that an increasing number of elderly people are being admitted inappropriately to acute hospital care. Certainly such findings must be considered in any debate on alternatives to acute hospital care as well as the future role of the community hospital. (Grant 1989; Higgens 1993; Ritchie 1996; Ritchie & Robinson 1998).

1.3.2 General Practitioner Attitudes to Community Hospitals

The active involvement of local general practitioners has long been identified as crucial to the successful functioning of community hospitals. It has been stated that recognition, training and adequate remuneration are essential if general practitioners are to be actively involved. (Shaw 1983).

Various studies have been done on general practitioner's attitudes to community hospitals. In 1977 Kernick and Davies surveyed general practitioners in Glamorgan. Most were

interested in access to beds. There was a strong correlation between age and attitudes to small hospitals with no doctors under the age of 40 being unwilling to work in them if the payment was adequate. (Kernick & Davies 1977).

In King's Lynn 47% of GP's said they were definitely interested in working in a community hospital and a further 40% said they might be. Factors such as age, the possession of a higher qualification and type of practice did not appear to influence their decision, through the distance of the community hospital from their home was important to them as was the possible inconvenience of being on call for a minor accident service. (Hayes & Bentham 1979).

Hull and Jones surveyed 103 general practitioners in Tower Hamlets without community hospital access. Out of the 72% who responded, 64% supported the concept of a community hospital. However only one third of them were prepared to commit themselves in advance to offering out of hours and night cover for inpatient beds. The greatest barrier to participation seemed to be lack of interest. For those who were interested, difficulty in access, time available during the day and lack of appropriate payment became important limiting factors. (Hull & Jones 1995).

Coast et al looked at alternatives to acute hospital care on a sample of 620 patients admitted to the specialties of general medicine and care of the elderly. On average the general practitioners and consultants involved estimated about 10% of admissions to the general hospital might be suitable for alternative forms of care. The most favoured choice amongst all doctors for an alternative were general practitioner beds and urgent outpatient referral. (Coast, Ingles, & Frankel 1996).

1.4 Rurality and Access to Health Care

In Scotland, as in the rest of the UK, the majority of community hospitals are found in rural areas. Most Scottish community hospitals were built in the first half of the Twentieth Century when issues of transport and medical technology were such that it was appropriate that they provided a wide range of services including surgery and obstetrics. (Grant 1984). In the author's survey in 1980 the average distance of a Scottish community hospital from the local DGH was approximately 30 miles. (Grant 1984). It has been estimated that up to 40% of GPs in some rural areas have access to a community hospital while only a very small minority of urban GPs and their patients have such access. (Seamark, Moore, Tucker, Church, & Seamark 2001).

Maxwell described six dimensions of health care in terms of quality; access, relevance effectiveness, equity, social responsibility, and efficiency. (Maxwell 1984). The whole question of patients' access to services is important in terms of equity and the effects of rurality on the quality of health care provision. (Watt, Franks, & Sheldon 1994). The evidence for rural populations having poorer health expectations in terms of morbidity and mortality is contradictory. (Cox 1995). Watt et al concluded that the evidence that barriers to access may have important effects on health outcomes is scant. The evidence that does exist suggests that the provision of local clinics can increase attendances when compared to a centralised service. (Goldacre & Gatherer 1977; Russell, Reid.N.G., Phillips, Glass, & Akehurst 1978). There is evidence that distance from a hospital is negatively related to referral rates so called "distance decay"(Russell, Reid.N.G., Phillips, Glass, & Akehurst 1978). This has been confirmed by several authors. Haynes and Bentham reported the greater the distance from a health facility the less the utilization of that facility though

there was no evidence that this implied reduced need. (Hayes & Bentham 1979). Gruer also showed that lower referral rates to hospital are related to increased distance of residence, both from the GP and the hospital. (Gruer 1972).

There is some evidence that the community hospital substitutes for some district general medical care in rural areas. (Baker, Goldacre, & Muir Gray 1986; Tomlinson, Raymond, Field, & Britten 1995; Treasure & Davies 1990). The effect on the health outcomes for such rural populations is not generally known. The lack of high quality information impedes the development of research. (Ritchie 1996). What comparative studies that have been done, do not suggest that community hospitals have a negative effect on the health of the rural populations. (Liddell, Grant, & Rawles 1990). This lack of robust information on community hospital activity has been recognised as one of the major problems in preventing development. (Jarvie 1990; Ritchie 1996).

1.5 The General Practitioner and Referral to Hospital

General practitioners play a central role as hospital gatekeepers. The decision to admit is not always made on medical factors alone. (Newton, Hayes, & Hutchinson.A. 1991). Newton et. al in a qualitative study examining factors influencing general practitioner's referral decisions concluded that, referral was a type of social action, which could best be understood by interpreting the meanings and motives of those most involved. The authors identified four groups of factors, doctor related, case specific, patient related and structural which influenced the referral decision. Though the study was limited by the relative small sample size and its concentration on outpatient referrals the results supported the work of Dowie who saw that clinical decisions are not isolated cognitive events but integral to the context in which the decision maker operates. (Dowie 1983).

The question of referrals to community hospitals has been considered by several authors. (Aaraas, Fylkesnes.K., & Forde.O.H. 1998; Baker, Goldacre, & Muir Gray 1986; Treasure & Davies 1990). The general conclusion from these studies has been that the majority of these patients in community hospital beds would have been admitted to a district general hospital if the GP beds had not been available. Aaraas et al in the Finnmark study in Norway looked at 40 GP's with access to community hospitals and 8 without access. The authors concluded that while medical motives dominate the decision to refer patients to general hospitals, social factors including the distance from the general hospital, patient and family preference as well as the nursing needs of the patient are important considerations when general practitioners have access to GP beds.

Wilkin and Smith proposed two key questions in explaining variation in general practitioner referrals to hospitals 1) *"are the risks to the patient serious if I do not refer now?"* and 2) *"have I the means (time, resources, facilities) to find out more"*. (Wilkin & Smith 1987). Aaraas concluded that admission to a community hospital would be a rational response to these questions to investigate, treat and observe common acute exacerbations in patients with well known chronic conditions. This finding has also been supported by several other authors. (Baker, Goldacre, & Muir Gray 1986; Tomlinson, Raymond, Field, & Britten 1995). They concluded that referral to a community hospital was a complex process which involved the interaction of both social, psychological and medical factors.

1.5.1 Characteristics of Patients Admitted to Community Hospitals

While broad overviews of community hospital function can provide location specific information on service provision they fail to give complete understanding as to why such

patients are admitted and what are the outcomes of the care provided. (Grant 1984; Sichel & Hall 1982; Treasure & Davies 1990).

Patients admitted to community hospitals in the main tend to be elderly and female, reflecting the gender distribution of the older population and suffering from circulatory, respiratory and musculoskeletal problems. (Harris 1986; Humphreys 1973; Knight 1996a; Sichel & Hall 1982; Tomlinson 1992). However the underlying purpose of the admission and the reasons behind why the doctor has decided to admit are often much harder to understand. A significant number of patients are admitted for rehabilitation, respite care and for terminal care while some are admitted due to social reasons. (Aaraas 1995; Knight 1996b; Tomlinson, Raymond, Field, & Britten 1995).

In a three month prospective, observational study in eight Leicestershire community hospitals Tomlinson et al found that 70% of patients were over 75 years on admission, 35% were admitted for acute care, 31% for respite care, 22% for rehabilitation, 7% for terminal care/palliative care and 5% for other reasons. (Tomlinson, Raymond, Field, & Britten 1995). The same authors found that while the general characteristics of inpatients may be broadly similar patterns of admission can vary considerably between individual community hospitals. (Tomlinson, Raymond, Field, & Britten 1995). These variations relate, at least in part, to differences in service availability within individual hospitals. (Grant 1984). Variations in patterns of admission are also likely to reflect geography and demography, particularly the distance from the acute hospital, the historical nature of service delivery within a region and the experience and training of the staff within the hospital. (Cook & Porter 1998; Jones & Tucker 1988; Treasure & Davies 1990).

The majority of patients are admitted to community hospitals from home though a significant number are transferred from other hospitals. (Aaraas 1995; Sichel & Hall 1982; Tomlinson, Raymond, Field, & Britten 1995). Home is the commonest discharge destination, though small but significant numbers of patients are transferred to other hospitals and nursing homes. (Aaraas 1995; Knight 1996b).

Though limited by size and design, these studies support Ritchie's conclusions that the purpose of an admission to a community hospital is not necessarily wholly medical nor is the purpose accurately conveyed by the standard means of recording hospital admission and discharge information. (Ritchie 1996).

1.5.2 Community Hospitals as a Provider of Inpatient Care.

Several UK studies have compared the usage of inpatient facilities by practices with and without access to community hospitals in the same geographical area. Baker et al, in a large Oxfordshire study, reported that elderly people registered with rural practices with access to community hospitals used 60% fewer general medical and geriatric beds (excluding other medical sub-specialities) than practices without access. (Baker, Goldacre, & Muir Gray 1986). However, they used 12% more general, geriatric and GP medical beds combined than non-community hospital practice patients. However, in Cook and Porter's study in the same region, analysing the bed days occupied by elderly patients from 41 practices with access and 33 without access to community hospitals, these apparent effects of community hospitals on DGH bed use almost disappeared when the distance between the GP practices and the DGH were included in the regression analysis. (Cook & Porter 1998). They found that the effect of geographical distance on bed use occurred with both

types of GP practice, with both DGH and community hospital beds. The closer to the hospital, DGH or community hospital, the more beds used.

Hine and her colleagues, carried out a two year retrospective observational study of 47 Practices (representing 334,255 registered patients) in the Bath district. (Hine, Wood, Taylor, & Charity 1996). Fifteen practices had community hospital access and 32 practices in the rural areas of the district had no access. They found that age standardised bed usage rates by populations with community hospital access were about 42% lower than the rates for Bath city practices. However the overall bed usage of practices with community hospital access was 3% higher in year one of the study and 7% higher if year two of the study compared to practices without community hospital access. The effect of distance may have been a contributory factor as may the difference in the supply of beds. (Kirkup & Forster 1990). Using multiple regression analysis with nationally available data Kirkup and Foster showed that the supply of beds had the major effect on hospital inpatient use. The greater the availability of beds the greater the use.

Aaraas and his colleagues in the Finnmark study of 40 general practitioners with access to community hospitals and 8 without found that access to a community hospital was associated with a significant 40% reduction in total referrals to general hospitals adjusted for age and sex. Medical needs appeared as the only motive of major importance for the referral decision in about 50% of cases. (Aaraas, Fylkesnes.K., & Fordc.O.H. 1998).

The community hospital option was chosen mainly due to additional motives such as long distance, nursing needs and preferences of the patient and family. This study was weak on several grounds. It was an observational study based on only one week's recording. Only

8 out of the 48 general practitioners were without access to community hospital beds and were closer to the district general hospital. There were only 205 referrals to the general hospital and 29 referrals to the community hospitals examined. However concurrent data showed that only 20% of patients admitted to community hospital beds needed further admission to hospital. The outcome of care was generally satisfactory.

The use of general hospital beds was considerably lower for populations with access to community hospitals. (Aaraas, Erickson, & Irtun 1998; Aaraas, Kristiansen, & Melbye 1998). The same authors also concluded that community hospitals had a pre-hospital 'buffer' function by preventing patients being admitted unnecessarily. The authors estimated that 45% of community hospital stays appeared to replace DGH admissions. (Aaraas, Kristiansen, & Melbye 1998).

This study was based on fifteen units of 2-16 beds all located next door to the doctors surgeries. However, the hospitals were on average located further from the acute hospital compared to the average Scottish community hospital. (Grant 1984). The lengths of stay recorded in this study were only a few days on average, which is not comparable with the community hospitals in Scotland where length of stays are on average much longer. (Gill 1994; Grant 1984).

1.5.3 Outcomes of Care and the Community Hospital

Published evidence for the effects of access to a community hospital on health outcomes is limited. Liddell et al undertook a study of 451 patients with myocardial infarction in Scotland. 62% were admitted to a community hospital, 28% were admitted to a district general hospital and 11% were kept at home. The mortality rates of patients admitted to

community hospitals and the district general hospitals (DGHs) were 25% and 23% respectively. However, the patients chosen for treatment in the different settings varied considerably in terms of age, morbidity, home circumstances and other factors. (Liddell, Grant, & Rawles 1990). The authors concluded *"It has been shown that the selection of patients by age, history of heart failure and coexisting illness largely explains the variations in mortality rates for patients with myocardial infarction treated indifferent types of hospital and ward*". Similarly, a study of coronary care in Brecon concluded that mortality and resuscitation rates compared favourably with coronary care units and medical wards in DGH's. (Davies 1982).

It has proved difficult to produce genuinely comparable data on outcomes for patients in different settings, including community hospitals, because of the problems of controlling for inputs and patient selection. A study of casualty and surgical services in five community hospitals in Perthshire between 1954-1984 concluded that standards of care were good and that post-operative complications were negligible. (Blair, Grant, & McBride 1986). Seamark et al in a retrospective study compared palliative terminal cancer care between 171 patients in community hospitals and 116 patients admitted to a hospice in Exeter. (Seamark et al. 1998). They found significant differences between the reasons for admission between the two groups. Pain and symptom control being more frequent and terminal nursing care less frequent reasons for admission to the hospice. Community hospital patients were liable to stay significantly longer while community hospital notes were less likely to meet minimum quality standards.

The experience and interests of local general practitioners play a crucial part in how community hospitals are used and will influence outcomes. Treasure and Davies reported

that in Brecon the community hospital dealt with 78% of all the hospital admissions of the practice. This community hospital substituted for the acute hospital through selecting partners with special interests and postgraduate qualifications. It was therefore able to offer a general surgical service run by general practitioners, as well as a wide range of general medical services. (Treasure & Davies 1990). Such community hospitals are an exception but illustrate the wide spectrum of provision existing within community hospitals within the United Kingdom.

1.6 Summary of Current Information about United Kingdom Community Hospitals

A number of government and health authority reviews have commented on the lack of quality information on studies comparing community hospital care with alternatives. (Department of Health 1974; Gillie 1963; Jarvie 1990; Ritchie 1996; Tucker 1987). Some of the reasons for this have been highlighted. One of the main problems is that it has not been possible to clearly define patient groups who would be more effectively managed at the community hospital level rather than at home or at the district general hospital. (Kernick & Davies 1977). Thus there are no robust, randomly controlled trials comparing the care given in different settings .To enable two groups to be compared an index of *"health status* " of each individual would need to be defined. This index would need to include dimensions of morbidity, cost, social impact on patient and carers as well as outcome measures. Even if the various components could be validated the data recording and contextual issues around running such a trial on different sites would make any results seriously open to question. The relative paucity of publications in this field is therefore not unexpected.

The majority of publications that support community hospitals as local providers of care are observational, usually enthusiast led, and thus potentially subject to bias. (Baker, Goldacre, & Muir Gray 1986; Treasure & Davies 1990; Victor 1988). Several of the most interesting publications are from Finland but questions of transferability must be acknowledged and therefore results must be interpreted with caution. (Aaraas 1995; Aaraas, Fylkesnes.K., & Forde.O.H. 1998). However, a series of publications have described how community hospitals may act as a substitute for district general hospital care (Aaraas 1995) and reduce the use of acute hospitals beds. (Aaraas 1995; Baker, Goldacre, & Muir Gray 1986; Hinc, Wood, Taylor, & Charity 1996). The key role of the referring general practitioner has been highlighted. The context of the potential admission not just in terms of medical need but also in terms of their geography, social circumstances and preference of admission destination is also remarked upon in current literature.

Chapter 2

2 Aims and Objectives

2.1 Determining the Aims and Objectives

The studies described in this thesis were designed to try and answer some of the identified deficiencies in our understanding of community hospitals.

- What effect did access to a community hospital have on a general practitioner's admission decisions?
- What practice characteristics, if any correlate with referral to hospital?
- What were the main factors involved in how general practitioners used community hospitals?
- What types of patients were admitted and with what outcomes?

To achieve the level of access required to attempt to answer these questions the studies were limited to the author's own district and its five community hospitals.

2.2 Aims

1. To describe the range and diversity of community hospital activity in Perth & Kinross.

2. To describe the medical inpatient referral behaviour of all Perth & Kinross practices and to determine how such behaviour might be influenced by practice characteristics.

3. To describe and understand the determinants which influence a general practitioner's decision to admit a patient to a community hospital.

4. To describe and understand what types of patients are admitted to Perth & Kinross community hospitals and the principal influences on the outcomes of care.

2.3 Objectives

In order to achieve these aims the study proceeded in four parts:

1. A retrospective activity analysis of all Perth & Kinross community hospitals. (April 1997-March 2000).

2. A retrospective analysis of the medical, and care of the elderly referrals from all Perth & Kinross general medical practices. (April 1997-March 2000).

3. A qualitative in-depth interview study of a sample of general practitioners with admitting rights to Perth & Kinross community hospitals in order to describe and understand the factors influencing their decisions to admit patients to community hospital inpatient care.

4. A one-year prospective observational study of all inpatient discharges from Perth & Kinross community hospitals. The objectives of this part of the study were to: a) assess whether a data collecting instrument would be a reliable and valid means of obtaining information b) provide a more informative picture of the types of patients being admitted c) provide accurate information on the outcomes of the community hospital care process d) determine what admission factors were important in determining whether a patient experienced delayed discharge.

Chapter 3

3 Intermediate Care and the Community Hospital

This chapter explores the current understandings around the concept of intermediate care. It describes different models and discusses why the community hospital can be seen as a provider of such care.

3.1 The Concept of Intermediate Care.

The term intermediate care has been used to describe systems of healthcare, which lie between the traditional boundaries of primary and secondary care (Steiner 1997). More recently it has been described as 'a bridge between home and hospital' (Secretary of State for Health Hansard February 2000).

Intermediate care models can be a means to reduce avoidable acute hospital admission, facilitating timely discharge, and promoting effective rehabilitation thereby minimising pressure or avoidable dependence on long-term care in institutional settings. (Higgs 1985; Vaughan & Lathlean 1999).

The term has now been widen to describe a group of functions which can occur in different settings in terms of healthcare provision and which do not require the technological resources of the specialist hospital. The focus is on the need to deal with sub acute conditions, often in a nursing rather than a medical setting, and to rehabilitate and maintain chronic conditions. Intermediate care can be seen as a whole system approach to a range of multidisciplinary, multi-agency services designed to maximise independence, to maintain patients at home or out of institutional care thereby reducing avoidable hospital admission. (Higgs 1985; Steiner 1997; Vaughan & Lathlean 1999). (Williams & Last 1998).

There are several factors promoting the need to re-examine the traditional boundaries of primary and secondary care informed by our current understanding of intermediate care:

- Increasing demand for health services by an aging population.
- An increasing number of inappropriate emergency admissions to the acute medical services. (Blatchford & Capewell 1995; O' Neill & Pearson 1995; Royal Colleges of Physicians of Edinburgh and Glasgow 1999).
- The development of new therapeutic and diagnostic techniques with shorter admissions to the acute sector.
- Increasing demands on traditional primary care services from patients who were previously managed by secondary care services.

3.1.1 Models of Intermediate Care

Several intermediate care service models have been developed and evaluated. Four of these models are described in more detail below.

1. **The Loeb Centre for Nursing and Rehabilitation**

   In the early 1960's the Montefoire Hospital in New York opened the Loeb Centre to treat patients who were referred by hospital doctors for transfer into nursing-led care. The Centre accepted patients over the age of 16 years who required intensive nursing in the intermediate setting that is, between hospital and home. Pearson et al (1975) reported that, compared to patients who had not received therapeutic nursing in the unit, patients who stayed in nursing beds had fewer hospital readmission's and reported better quality of life, greater functional experience and higher satisfaction. (Pearson, Punton, & Durant 1992).

2. Lambeth Community Care Centre

This 20-bedded unit was opened in 1985. Like the community hospital its major services included inpatient care, outpatient clinics and a day centre. Admitting contracts were held by 50 general practitioners in 14 practices. (Higgs 1985). Subsequent evaluation indicated that this intermediate care facility served multiple purposes. For low intensity acute care GP's felt it substituted for the district general hospital and for rehabilitation and physiotherapy it provided a faster service than the district general hospital, for respite care it was perceived to fill an unmet need. (Armstrong & Baker 1995).

3. Oxford Nursing Development Unit

In this study 164 cognitively intact patients, who were admitted to the acute hospital, previously living independently before hospitalisation, were randomly assigned to two groups, one to receive treatment from the intermediate care nursing rehabilitative unit the other the normal post operative care. They found the average length of stay in the treatment group significantly less, with a higher population obtaining discharge home with an overall lower morbidity. (Pearson, Punton, & Durant 1992). However there was no statistical control for the underlying severity of illness or other differences between groups. In addition there was a high attrition rate with a disproportionate number of drop outs from the control group therefore the results need to be interpreted with caution.

4 A Nurse led Community Hospital (North Mersey Community NHS Trust)

In this initiative a 28-bedded community hospital previously used mainly for respite care with low levels of occupancy was developed into a nurse led unit with GP medical cover. It was agreed that the service would be established with the following key objectives:

- Facilitation of early discharge from acute care.
- To maximise the support to primary care through integrated rehabilitation.
- Joint case management (from Health and Social Services).
- GP access to beds to prevent acute admission.

The unit was managed by an H Grade nurse supported by a G Grade development nurse as well as an appropriate nurse practitioners and therapists. The functioning of the unit was underpinned by widely circulated admission criteria that included:

- Patients to be aged 16 or over.
- Deemed medically stable for 48 hours minimum.
- No significant medical change anticipated.
- An anticipated discharge date.
- An anticipated discharge destination.

Over the first nine-month period of the unit operating it was estimated that the unit saved over 6000 acute bed days in the local DGH. On-going evaluation is continuing. (Vaughan & Lathlean 1999).

The evaluation of these models have been robust and on the whole, positive. An intermediate care service based on a nursing model rather than a traditional medical model can improve patient outcomes especially in terms of post operative and low technology

care. (Armstrong & Baker 1995). Yet it is clear that such schemes have not, in general, been duplicated and widely developed. This may reflect the scepticism that exists within the NHS for major changes in how care is provided. It may be as a result of vested interest in retaining the status quo in terms of bed control. Or it may reflect the inability of the system, given the enormous service and financial pressures on delivering high quality care, to embrace any change where the advantages in terms of patient care and cost are not both immediate and indisputable.

3.2 Intermediate Care and the Community Hospital

It has been argued that community hospitals have been delivering a model of intermediate care for as long as they have been in existence. (Baker, Goldacre and Muir-Gray 1986, McCormack 1993, Ritchie 1996). Community hospitals cross the interface between the two traditional pillars of the National Health Service. potentially providing an intermediate level of care between primary and secondary care. (Jarvie 1990; McCormack 1993; Tucker 1987).

What evidence is there to support the community hospital as a provider of intermediate care? There have been a number of studies designed to assess the proportion of patients admitted to community hospitals who could have been admitted to the DGH if community care were unavailable. Kernick and Davies estimated that nearly 50% of patients would have had to have been admitted to the DGH if the community hospital had not been available (Kernick & Davies 1976). Humphreys in a separate study estimated the figure to be 79%. (Humphreys 1973). Treasure et al (1990) in a follow up study in Brecon, estimated that nearly 78% of all medical admissions were managed in the local community hospital. (Treasure & Davies 1990).

One of the most widely quoted studies on community hospital usage comes from the Oxford study. Baker et al (1986) (Baker, Goldacre, & Muir Gray 1986) compared average hospital bed days per 10,000 people for three groups:

1. GP practices in Oxford, without access to community hospitals.
2. Practices out-with the city of Oxford without access to community hospitals.
3. Practices out-with the city of Oxford with access to community hospitals. A total of 67 practices with 498,000 registered patients were included.

The authors found that for practices with access to community hospitals, patients aged 65 or older used about half as many general medical or geriatric days at the district general hospital as patients without access. Patients under 65 used only about 75 percent as many days. The combined utilisation rates for community and district hospital days, across all specialities, indicated that age sex standardised bed rates by populations with community hospital access were about two percent higher than Oxford city rates and six percent higher than non-city rates in areas without access. Though no cost analysis was undertaken, the findings suggested that savings could be observed for populations with access to community hospital care.

However, in Cook and Porter's study in the same region, using multiple regression analyses of bed days occupied by elderly patients from 41 practices with access and 33 without access to community hospitals, these apparent effects of community hospitals on DGH bed use almost disappeared when the distance between the GP practices and the DGH were included in the regression analysis. (Cook & Porter 1998).

Hine et al (1996) using similar methodology, compared both the DGH, the community hospital and the care of the elderly hospital usage in the City of Bath, age standardised bed use rates by populations with community hospital access were about 42% lower than rates for Bath city practices. (Hine, Wood, Taylor, & Charity 1996).

Similar findings were recorded by Aarass and his colleagues in the Finnmark study. (Aaraas 1995). They found that access to a GP hospital was associated with a significant 40% reduction in total referrals to general hospitals adjusted for age and sex of the patients. However, as with previous studies, the problems of bias were recognised which may have showed results in favour of the community hospital.

Methodologies and findings are open to criticism especially in terms of bias. Each of these studies relied on non-blinded researchers judging the appropriateness of treatment, based on retrospective assessments of medical records. All judgements were subjective and no analysis of patient's relative outcomes were undertaken. It is therefore necessary to interpret all such studies with caution.

However, it is possible to say that there is some evidence that community hospitals can provide a level of intermediate care and act as a substitute for both DGH general medical care and for care of the elderly. This may result in slightly higher overall bed usage. There is no evidence available to allow comparisons between the outcomes of care of matched populations of patients treated in DGH's and community hospitals.

Chapter 4

4 Community Hospital Provision Within Perth & Kinross.

Study 1

This chapter examines the contribution Perth & Kinross community hospitals made to patient care during 1997-2000. It explores the differences in usage of general medical and specialist medical services between those practices with and without such access. It also examines identified differences in relation to individual practice characteristics.

4.1 Background

The district of Perth & Kinross contains five community hospitals within a 2000sq.ml. area of the Tayside district of Scotland. (Appendix 1.1). The total population of the region is approximately 135,000.

Seventeen practices, with a combined list size of 87,500, have no community hospital access. The largest proportion of this population lives in Perth City and the town of Kinross, which have a combined population of 73,500. Ten practices with a combined list size of 46,500 (approximately 35% of the resident population) have admitting rights to five community hospitals.

Southwest Perthshire, with a population of 20,600, has community hospitals in Crieff and Auchterarder served by a total of four general practices. The Strathmore locality has five practices, with a population of 20,500 patients and one community hospital in Blairgowrie. One small practice had no admitting rights by choice leaving the four remaining practices

with a total population of 17,400. Strathtay, which covers the largest area of Perth & Kinross has the smallest population of 8,200 with direct community hospital access with both a practice and a community hospital in Pitlochry and Aberfeldy. (Appendix 1.1).

The hospitals range in size from Blairgowrie with 26 general practitioner (GP) beds to Aberfeldy with 9 GP beds. In addition there are a small number of continuing care and dementia beds in all the hospitals except Auchterarder. (Table 4.1). All hospitals provide a wide range of services including outpatients, paramedical services and a minor injury service (Tables 4 2, 4.3). The main acute provider of services is Perth Royal Infirmary. A small number of patients, usually of a more specialist nature, are referred to Ninewells Hospital (Tayside University Hospitals Trust) in Dundee.

4.2 Methods

A fully anonymised extract of records for the period April 1997 to March 2000 was obtained from the Scottish Morbidity Record dataset number 1 (SMR 01). This dataset contains information on all non obstetric and non psychiatric hospital discharges. The medical specialties were general medicine, cardiology, geriatric assessment, general practice, nephrology, rheumatology, respiratory medicine, pain control, haematology, medical intensive care and coronary care. This extract provided details of the patients age and sex, registered general practitioner, date of hospital admission and discharge, admission type and discharge diagnosis coded according to the 10th revision of the International Classification of Diseases (ICD 10), (World Health Organisation 1992). Practice characteristics were obtained from the Tayside Health Board. The Practice list sizes as at October 1997, October 1998 and October 1999 were used in the analysis.

Jarman and Arbuthnott indexes for each practice were applied. (Arbuthnott 2000). The distance of each practices main premises from the DGH was taken as a proxy measure for the respective practice populations.

4.2.1 Classification of Admissions and Discharges

A total of 22 admission codes are listed in the SMR data manual version 1.2 (February 1997) for admission types. Six of these codes were identified in the SMR01 extracts during the 3 years of the study. Where the speciality of "*general practice*" is analysed four codes have been combined under "*emergency admission*", *("Emergency admission, no detail", "Patient non-injury", "Patient injury-Home"* and "*Patient injury-Other*"). "*Step down*" admissions include all patients classified as "*Planned Transfers"*, and "*elective admissions*" include all patients coded as *"Routine elective"*.

The referral data was grouped into two groups; "*General Medical*" and "*Specialist Medicine"*. This was necessary to overcome differences in the speciality coding used between different hospitals. eg. all discharges were coded to "*general practice*" in the community hospitals, but "*general medicine*" or "*geriatric assessment*" may be recorded in the DGH. To obtain meaningful comparisons, it was necessary to regard these as one speciality, "*General Medical* ". For example, a community hospital GP may refer a patient with pneumonia to the speciality of "*general practice*" in the community hospital, whereas another general practitioner may refer a patient with same condition to the speciality "*general medicine*" or "*geriatric assessment*" in the DGH

4.2.2 Statistical Methods

Unadjusted annual discharge rates were defined as the number of discharges for each general practice per year per 1000 adult patients registered at that practice. Unadjusted discharge rates were also calculated for the number of discharges for each general practice per year per 1000 patients over the age of 65. Adjusted discharge rates were also calculated to allow for sex ratio and list size.

Discharge ratios standardised for age and sex were calculated by the indirect method. Indirect standardisation for age and sex allow referrals of a practice to be compared to an average taking into account the age/sex distribution of the population. (Armitage & Berry 1987). The "*expected*" is the number of referrals the practice would be expected to have given its population and age/sex structure. Numbers greater than one represented more discharges than the Scottish average and numbers less than one represented fewer discharges than average ie a ratio of 1.1 indicates a result 10% above the Scottish average, a ratio of 0.9, 10% below. For specialist discharges a discharge ratio of 0.6 is taken as the Scottish average.

The relationships between the discharge rates and age sex standardised discharge ratios and practice characteristics were initially assessed using Spearman rank correlations. Multiple linear regression was carried out to assess what combination of practice characteristics best predicted discharge rate. All data were analysed using SPSS for Windows (Version 9) (Nortusis 1993).

4.3 Results

4.3.1 Outpatient services

All five hospitals had significant out-patient activity which varied from hospital 1 with general medicine, surgery and orthopaedic clinics to hospital 3 which had a full range of outpatient services including medicine, surgery, geriatric medicine, psychiatry, geriatric psychiatry, gynaecology and orthopaedics. Between 1997 and 2000 a total of 9558 outpatients were seen. (Table 4.2).

All hospitals provided paramedical services. These included audiometry, occupational therapy, physiotherapy, chiropody, dietetics, orthoptics and speech and language. All hospitals, except hospital 5, offered non-emergency straight X-ray facilities. A total of 127,524 paramedical attendances were recorded during the three years of the study. (Table 4.3). This represented, over the three years a 1.3% fall in out patient numbers and a 0.7% rise in casualty numbers.

The most heavily used service in all hospitals was physiotherapy with 68,478 attendances. This service showed a decline in usage in hospitals 1, 4 and 5. In hospitals 2 and 5 there had been a significant increase in referrals over the three years of the study. Similarly occupational therapy showed significant decline in each of the hospitals except hospital 5 where this service had recently been introduced. All five hospitals had minor injury units, which dealt with a total of 28,500 casualties during the three years of the study. (Table 4.2).

4.3.2 Inpatient Characteristics

From April 1997 to March 2000 - 37.75 WTE general practitioners with a combined list size of over 46,200, (9690 patients over 65) discharged 3953 patients from the five community hospitals in the study. (Table 4.10). Of the total 59.7% were female and 40.3% male with a mean age of 76 years (25th centile 71 years, 75th centile 86 years) (Table 4.7). The mean inpatient stay was 20 days (SD 42) while the median stay was 9 days (Table 4.8). 22.5% were admitted twice during any one year. 7.7% were admitted three times and 3.5% were admitted on four or more occasions. (Table 4.9).

4.3.3 Types of Admissions

73.7% of admissions were classified as "emergency", 25.1% were classified as "step down", 1% being classified as "elective". (Table 4.11).

4.3.4 Community Hospital Practices (CH Practices)

The ten community hospital practices had an average of 3.75 whole time equivalent partners per practice with an average number of patients per whole time partner of 1224. The practices came from reasonably affluent rural and semi-rural areas of Perthshire with average Jarman deprivation index of 2.05 and an average Arbuthnott % of 1.15. (Table 4.14). The mean range of the practices from the district general hospital was 20 miles (range 14 30 miles) (Table 4.14).

4.3.5 Non-community Hospital Practices (Non CH Practices)

These 17 practices were predominantly urban with an average of 3.25WTE partners per practice. The average number of patients per partner was 1553. The mean distance of the

practices from the DGH was 8.6miles (SD 11.9). The majority of these practices were in and around Perth but one small single-handed practice was 46miles from the DGH and the other, a small two-man practice was 17 miles distant. (Table 4.13).

4.3.6 General Medical and Specialist Discharges

On average the community hospital practices discharged 32.4% (range 18.5–47.1%) of all medical hospital discharges from their local hospitals. (Table 4.15). This represented on average 35.5% of the over 65's. The mean overall general medical discharge rate was higher for community hospitals practices at 79.3 per thousand of the population compared with 67.6 per thousand of the population for the non-community hospital practices although not reaching statistical significance. (p=0.136) (Table 4.14).

The average discharge rate for the over 65's was also higher for the community hospital practices at 236.4 per thousand of the population compared with 221 per thousand of population for the non community hospital practices which was also not statistically significant. (p=0.518) (Table 4.14).

The mean specialist discharge rate for community hospital practices was 18.5 per 1000 population and 39.8 per thousand of the population over 65. For non-community hospital practices the respective figures were 19.1 and 44.3 per 1000. (Table 4.14).

4.3.7 Adjusted Discharge Rates

(a) General medical

The annual discharge rates for the three years of the study were adjusted to allow for the practice male/female ratio and age distribution. (Table 4.19). The two

estimated discharge rates were relatively static over time for both CH practices and non-CH practices. There was no statistical difference between the two groups for the discharge rates from the over 65's for any year of the study. There was however a small but consistent increase in the overall discharge rates for the CH practices over the same period. This was estimated at between 10.4 (95%CI=5.1-15.7 $p<0.05$) in 1997/98 and 11.0 (95%CI=4.5-17.5) in 1999/00. (Table 4.20).

The age/sex standardised general medical discharge ratios varied widely from 0.57 to 1.49 across the ten community hospital practices during the three years of the three years of the study. The average ratio being 0.99. There was similar wide variation for the non-community hospital practices from 0.67–1.27. The average ratio being the same as the community hospital practice ratio of 0.99. (Tables 4.21, 4.22, 4.23). Practices G & E were consistently the highest and lowest dischargers respectively. Practice BB was consistently the highest non-community hospital referrer while practice L was persistently the lowest referrer during the 3 years of the study. (Table 4.21, 4.22, 4.23). There was no significant difference between age sex standardised discharge ratios between CH practices and non-CH practices.

(b) Specialist Medicine

The adjusted rates were consistent over time though there was some evidence that the rate per 1000 for the over 65's showed an increase for the non-CH practices in 1999/00. (Table 4.24). There was no statistical difference between the two groups of practices. (Table 4.25).

The mean specialist discharge ratio was higher for the community hospital practices at 0.67 (range 0.41–0.98) compared with the non-community hospital practices at 0.58 (Table 4.26, 4.27, 4.28). This difference approached statistical significance. (p=0.098).

For the last two years of the study the same community hospital practice G which had consistently the highest general medical discharge rate also had the highest discharge rate for specialist medicine. There was more variation amongst non-community hospital practices in terms of high dischargers. Practice L which was the lowest general medical discharger was also the lowest specialist discharger for the last two years of the study. (Table 4.26, 4.27, 4.28).

4.3.8 The Relationship of Community Hospital Discharge Rates and Practice Characteristics

Table 4.29 shows the correlations by type of discharge (general or specialist) and raw discharge rates as well as standardized by age and sex. There were strong and statistically significant positive correlations between deprivation as represented by the Jarman score and the age/sex standardized rates. Among the practice characteristics the number of female partners, training practices were correlated with high discharge rates. Having minor surgery capabilities, cervical screening, and large distance to the nearest DGH were all significantly associated with lower discharge rates from community hospitals. Having access to community hospitals was not significantly associated with discharge rates from community hospitals after adjustment for age and sex. When only specialist discharge rates were considered only being a single-handed practice was associated with high discharge rates.

Multiple linear regressions were then carried out on the population general discharge rates and age, sex standardized rates using a stepwise procedure. For the unadjusted discharge rate, being over 65, number of female partners and having training status were all significantly and independently related to higher discharge rates. After adjustment for these factors, having minor surgery, and a cervical screening program were significantly associated with lower discharge rates. The model with these five characteristics explained a large proportion of the variability in unadjusted discharge rates (54%).

With the age, sex standardized discharge rates, training status and minor surgery remained statistically significant, while a higher Jarman score was associated with higher discharge rates. Clearly adjusting for age and gender removed the percentage over 65, number of female partners and cervical screening as significant predictors of discharge rates. The percentage of variation of discharge rates explained by the significant factors was again large at 48%.

Having access to community hospital was not significantly associated with discharge rates from community hospitals after adjustment for age and sex. When only specialist discharge rates were considered only being a single-handed practice was associated with discharge rates.

4.3.9 Common Diagnoses

An overview of the direct disease classifications recorded at the broad chapter heading level of the international classification of diseases (10^{th} revision ICD 10) are shown in Table 4.31. Relatively large proportions of patients had diseases of the circulatory system

(16.8%) respiratory system (13.8%) and musculature skeletal system 9.8%. While a significant number of diagnoses were recorded as having symptoms and signs of ill-defined conditions (14%) (Table 4.31).

4.4 Discussion

During the three years of this study overall community hospital activity tended to be static with some areas showing slight reductions in activity. It is possible to suggest some of the possible factors, which might account for these changes.

The problem of increasing lengths of stay reflected the "blocking" of beds by elderly patients who were not able to be placed in a more appropriate community setting. The relatively high percentage of readmissions reflected the prevalence of chronic conditions in the elderly. Recurrent readmission may have indicated the episodic nature of the continuing decline in health status of this elderly population. It might also have reflected an element of so called recurrent "respite admissions".

The small overall reduction in paramedical activity, though not in all hospitals, may partly have reflected the small reduction in inpatient activity but could also have been contributed to by problems in recruiting and failing to replace therapists which were identified as problems in several of the hospitals.

4.4.1 Discharge Comparisons Between Community Hospital and Non-Community Hospital Practices

During the three years of the study the community hospitals in this study discharged on average 32.4% of all their practice's general medical discharges. This represented over one

third, (35.5%) of all their over 65 discharges. Three quarters of these discharges were under the direct control of the general practitioner with the remainder being transferred from other hospitals. There was no statistically significant difference between the discharge rates between the two groups of practices. There was no increase in usage in the highest users of hospital services namely the over 65's.

Over 65's from community hospital practices were not being discharged more from hospital than their counterparts in non-community hospital practices. Issues of patient preference almost certainly are involved as local admission improves access to family and friends while at the same time allowing care from those that they are familiar with. Questions of appropriateness and equal access to services are raised.

Between the non-community hospital and community hospital practices there were large variations in discharge ratios between individual practices. The practice, which was consistently the highest user of general medical and specialist services, was approximately the same size as the practice, which was the lowest user. Similarly it had a similar number of partners with postgraduate qualifications, the same percentage of over 65's and was approximately the same distance from the DGH. The main practice differences were that the high user practice was a training practice with a higher deprivation index and was significantly closer to the community hospital.

These findings are similar to those found in other UK studies. Baker et al reported that elderly people registered with Oxfordshire rural practices with access to community hospitals used 60% fewer general medical and geriatric beds than practices without access. (Baker, Goldacre, & Muir Gray 1986). The same practices used 12% more general,

geriatric and GP medical beds combined than non-community hospital practice patients. Hine and her colleagues in a two year retrospective observational study of 47 Bath practices found that age standardised DGH bed usage rates by populations with community hospital access were 42% lower than in practices with no access. (Hine, Wood, Taylor, & Charity 1996).

The effect of simply providing a service may have been a contributory factor to the usage of the service. Using multiple regression analysis with nationally available data Kirkup and Foster showed that the supply of beds had the major effect on hospital inpatient use. The greater the provision of service the greater the demand. (Kirkup & Forster 1990). These results suggest that the demand for inpatient services between the practices with and without access to community hospitals is essentially similar. Providing a local resource appears to allow a significant proportion of the demand to be met locally.

4.4.2 Relationship of Discharge Rates and Practice Characteristics

Previous studies have shown have shown hospital admission rates varied widely between general practices (Fertig et al. 1993; Langley et al. 1992; Wilkin 1992). It has proved difficult to relate these variations to specific general practice characteristics. (Reid, Cook, & Majeed 1999).

Information on the relationship between doctor and practice characteristics has difficult to obtain, since it requires relatively large scale research involving large numbers of general practitioners. It has been suggested that background, training and specialist interests could explain referral variation. However previous authors have found little direct evidence for this suggestion. (Morrell, Gage, & Robinson 1971). A number of authors have suggested

that the structural features of practices, such as practice size, demography, and patients registered might be expected to have a bearing on referral rates.(Berkhout 1984; Spencer 1971) However the evidence to support such suggestions is not available. (Wilkin 1992; Wilkin & Smith 1987).

The majority of studies concern the variations in general practitioner referral activity to acute hospitals hence findings are not strictly comparable with this study. However Aaraas et al reported that general practitioners chose the community hospital option for referral because of long distances to the acute hospital, nursing needs and the preference of patient and family. (Aaraas, Fylkesnes.K., & Forde.O.H. 1998). There is some evidence for a relationship between hospitalisation and population characteristics. (Weissman, Gatsonis, & Epstein 1992). Caper et al reported that patients living in low-income areas are more liable to be hospitalised. (Caper 1992).

In this study high discharge rates from community hospital practices were correlated with the being over 65, the number of female partners and the training status of the practice. While the distance to the DGH, minor surgery capabilities, and cervical screening rates were correlated with lower discharge rates. Cervical screening, minor surgery, and chronic disease management clinics have been considered as proxy practice quality measures. (Giuffrida, Gravelle, & Roland 1999; Majeed & Voss 1995). Using multiple linear regressions the age sex standardized discharge rates, training status and minor surgery remained statistically significant while a higher Jarman score was associated with a higher discharge rate. Adjusting for age and sex removed the percentage over 65, the number of female partners and cervical screening as significant predictors of discharge rates.

There was a significant correlation between discharge rate and a community hospital's training status. There has been some suggestion that practices find a community hospital useful for training and teaching. (Grant, Ramsay, & Bain 1997). Partners may therefore be more inclined to admit a patient locally if they feel that they are competent to provide care. They may also find it easier to admit if they are too busy to visit at home. It is possible that a registrar's recent hospital experience may also increase the likelihood of local admission.

The provision of minor surgery services had a strong correlation with a lower discharge rate though all recognised proxy quality measures such as cervical screening and chronic disease management provision were similarly, though not as strongly correlated. This may indicate that wider service provision and a more structured organisational delivery may be reflected in less time for involvement in the community hospital. It may also reflect attitudes, which see a higher priority for general medical services.

Clearly organisational and practice characteristics do not on their own explain why such large variations exist. As previous authors have suggested the process of referral is a complex social action which involves many subtleties. (Dowie 1983; Newton, Hayes, & Hutchinson.A. 1991). It is necessary to determine the complex reasoning around individual partner decisions before the whole process can be understood. (see Chapter 5 and Chapter 6).

These findings are in keeping with previous studies. They also raise the possibility that practice training status may be important in community hospital inpatient utilization. The differences in usage between rural and urban practices has major implications for patient care especially of the elderly population who are the highest users of inpatient services. It

indicates the need for further research into whether these differences have any effect on the outcome of patient care in the long term and why such large referral differences exist between practices. These and other questions need to be answered if community hospitals are accepted as providers of intermediate care in other than rural and semi rural locations.

4.5 Conclusions

A significant volume of medical inpatient, outpatient and paramedical work is done in Perthshire community hospitals. There was no statistically significant difference between the general medical and specialist medical discharge rates between practices with and without access to community hospitals. Within the two groups of practices there were wide and consistent variations in hospital usage.

A strong correlation between community hospital usage and practice training status was identified. Interestingly there was a negative correlation with other proxy quality measures. Community hospital development may benefit from ensuring that all practices using such units have training status which recognises the commitment involved.

The different patterns in inpatient care between rural and urban practices has significant implications especially for the elderly population who are the highest users of inpatient services. There was no suggestion that the locus of care in rural areas was inappropriate but questions of rural equity of access to all available NHS services as well as standards and outcomes of care require further research.

If community hospitals are to provide an appropriate level of intermediate care beyond their current rural/semi-rural locations then these, and associated questions require to be answered.

4.6 Strengths and Weaknesses

4.6.1 Strengths

The value of the data in this part of the study lies in the comprehensiveness of the approach. By obtaining information on three consecutive years individual yearly variation was minimised. Data from all the Perth and Kinross practices have been analysed comparing and contrasting the general and specialist referral patterns between two groups of practices within one large well-defined urban and rural population. This study provided a comprehensive picture of the contribution of Perth & Kinross community hospitals to overall patient care. It also provides a measure of how the presence or absence of a community hospital affects the inpatient referral patterns of related practices.

4.6.2 The Sampling Frame

The five hospitals in this study provided a well-defined geographical group which in size and function were fairly typical of the community hospital in Scotland. (Blair, Grant, & McBride 1986; Grant 1984). The community hospital practices restricted their admissions to only one local hospital. The cohorts of community and non-community hospitals practices were clearly defined with no cross over thus making the analysis less likely to be subject to confounding data.

4.6.3 Weaknesses

In this thesis it has been argued that the SMR01 instrument requires to be modified in order that the data collected provides a more accurate picture of what is actually happening in

community hospitals. The debate concerns the criterion validity of the instrument particularly in areas of types of admission and in the medical emphasis in the SMR01 on the reasons for admission. If these arguments are valid then it calls into question the validity of these data in this part of the study.

The data in this part of the study was also influenced by the lack of clear definitions of some of the key variables being recorded. For instance what constituted a "medical emergency?" As this was a retrospective study observations were essentially uncontrolled with no opportunity for standardisation apart from the written instruction and minimal training given to all nursing staff required to complete SMR01 forms. The multiple observers recording the data at the different sites would also be a significant source of potential discrepancies within the data.

4.6.4 Sample Selection Bias

The choice of community hospitals to include in this study was essentially a pragmatic one. The author had access to the hospitals and the practices as well as to the information on their function. The scope of the study attempted was a large one and could not easily have been extended outwith Perth and Kinross within the time and financial resources available. Its success depended on the open access to the hospitals and general practitioners involved.

Confining the study to Perth and Kinross restricts the potential of extrapolating the results to other UK populations. The Perth and Kinross population differs in many ways from populations in other parts of the country. It has a scattered rural population as well as a main centre of population with relatively low levels of deprivation.

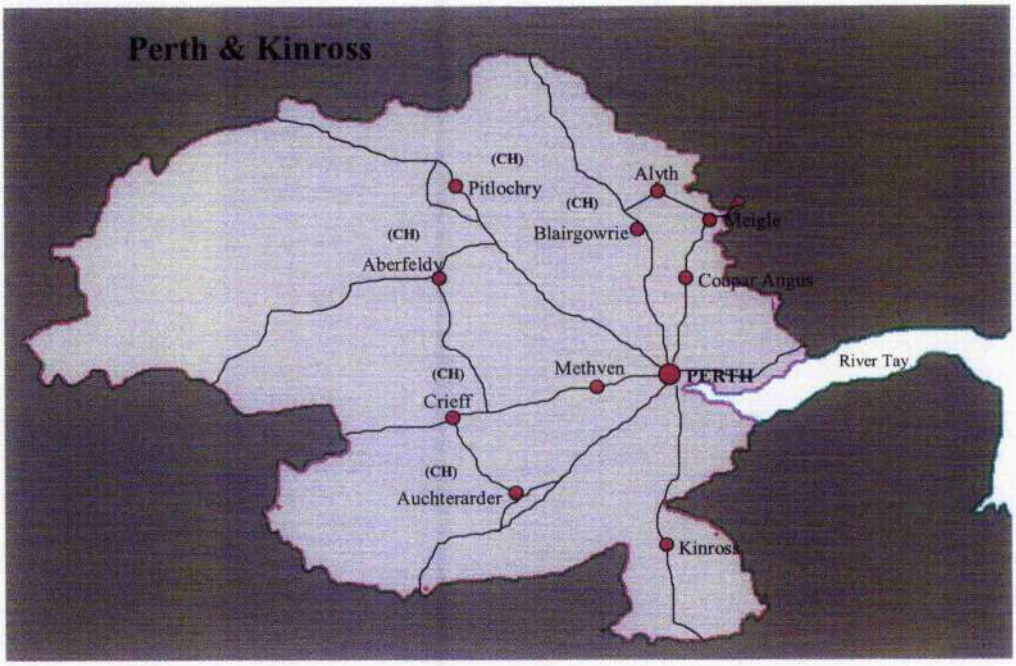

Perth & Kinross
(CH)
Pitlochry
Alyth
(CH)
Blairgowrie
Meigle
(CH)
Aberfeldy
Coupar Angus
(CH)
Crieff
Methven
PERTH
River Tay
(CH)
Auchterarder
Kinross

Table 4.1

Perth & Kinross Community Hospitals, Cumulative Inpatient Statistics
April 1997-March 2000

Hospital	Year	Average No of Available Beds	Admissions (Inc Transfers)	Percentage Occupancy (%)	Discharges (Inc Readmissions and Deaths	Deaths (%)
1	97/98	9.0	158	71.8	164	12.8
	98/99	9.0	158	61.5	156	10.4
	99/00	9.0	155	61.4	155	17.6
2	97/98	26.0	381	79.6	391	10.7
	98/99	26.8	369	83.8	369	11.9
	99/00	26.2	312	83.7	308	16.9
3	97/98	26.1	362	90.1	359	13.0
	98/99	23.6	335	78.2	348	10.9
	99/00	24.0	369	78.4	378	10.9
4	97/98	11.0	213	77.1	212	9.5
	98/99	11.2	193	79.3	199	7.7
	99/00	12.8	197	83.0	194	12.3
5	97/98	16.0	256	70.3	256	7.4
	98/99	16.0	256	79.1	258	11.8
	99/00	16.0	205	72.6	209	9.2

NB *'Codes.xls' provides hospital codes.*

Table 4.2

Other Perth & Kinross Community Hospital Activity
Cumulative Statistics April 1997-March 2000

Hospital	Year	Average No of Stay Beds Available	Outpatient Attendances					
			General Medicine	General Surgery	Geriatric Medicine	Adult Psychiatry	Geriatric Psychiatry	Gynaecology
1	97/98	12.0	80	151	N/A	N/A	N/A	N/A
	98/99	12.0	62	161	N/A	N/A	N/A	N/A
	99/00	12.0	45	167	N/A	N/A	N/A	N/A
2	97/98	30.0	141	413	N/A	122	11	155
	98/99	29.2	105	375	N/A	271	N/A	146
	99/00	15.0	103	368	N/A	225	27	171
3	97/98	13.9	105	490	6	86	15	118
	98/99	11.1	72	520	9	143	35	117
	99/00	7.6	155	444	N/A	158	52	95
4	97/98	12.0	207	262	N/A	N/A	N/A	78
	98/99	11.8	178	201	N/A	N/A	N/A	57
	99/00	10.2	137	207	N/A	N/A	N/A	56
5	97/98	N/A	91	179	N/A	N/A	N/A	74
	98/99	N/A	78	229	N/A	N/A	N/A	91
	99/00	N/A	84	205	N/A	57	N/A	69

Orthodontic	Orthopaedic	Casualty Attendances
N/A	60	760
N/A	40	693
N/A	18	588
78	104	2,312
79	96	2,365
72	103	2,560
N/A	104	3,511
N/A	76	3,406
N/A	88	3,736
N/A	64	1,445
N/A	58	1,185
N/A	48	1,256
N/A	43	1,532
N/A	40	1,446
N/A	43	1,487

Where an outpatient clinic ie dermatology occurs in only one hospital this is not recorded. Note the above Outpatients and Casualty Attendances are Total activity ie both New and Follow up Attendance. 'Codes xls' provides Hospital Codes

Table 4.3

Paramedical and X-Ray Attendances Perth & Kinross Community Hospital Cumulative Statistics March 1997-April 2000

Hospital	Year	Audiometry	Chiropody	Dietetics	Occupational Therapy
1	97/98	N/A	650	104	2,204
	98/99	N/A	671	105	1,702
	99/00	N/A	612	83	773
2	97/98	534	2,648	201	2,208
	98/99	478	2,695	247	1,694
	99/00	459	2,476	237	1,541
3	97/98	352	1,829	497	2,275
	98/99	348	1,827	357	1,516
	99/00	314	1,945	500	1,953
4	97/98	165	907	170	2,059
	98/99	212	1,081	139	2,003
	99/00	167	987	117	758
5	97/98	107	1,385	219	N/A
	98/99	135	1,423	239	82
	99/00	128	1,490	307	165

Orthoptics	Physiotherapy	Speech/ Language	X-Ray
30	4,315	22	191
40	3,829	24	180
5	3,495	26	129
61	5,263	524	883
57	5,173	495	847
59	5,967	615	679
85	8,364	191	687
75	6,623	86	761
79	5,897	236	589
56	4,868	6	157
51	3,538	40	132
32	3,704	104	90
56	1,897	37	N/A
60	2,529	49	N/A
42	3,016	68	N/A

Table 4.4

Number of Patient Discharges from the Speciality of General Practice in Perth & Kinross Community Hospitals for the Period April 1997–March 2000

Hospital ID	April 1997 - March 1998	April 1997 - March 1998	April 1999 - March 2000	Total
1	164	156	155	**475**
2	391	369	308	**1068**
3	359	348	375	**1082**
4	212	199	194	**605**
5	256	258	209	**723**
Total	**1382**	**1330**	**1241**	**3953**

Table 4.5

Number of Discharges from the Speciality of General Practice by Case Type for Perth & Kinross Community Hospitals April 1997–March 2000

Hospital ID	Admission Type			Total
	Elective Inpatient (%)	"Step Down"(transfers) %	Emergency Inpatients (%)	
1	5(1.1%)	85(17.8%)	385(81.1%)	**475(12.0%)**
2	16(1.5%)	331(30.9%)	721(67.5%)	**1068(27.1%)**
3	14(1.3%)	295(27.3%)	773(71.4%)	**1082(27.4%)**
4	0(0.0%)	162(26.8%)	443(73.2%)	**605(15.2%)**
5	7(1.0%)	122(16.9%)	594(82.1%)	**723(18.3%)**
Total	**42(1.0%)**	**995(23.9%)**	**2916(75.1%)**	**3953**

Table 4.6

Age/Sex Profile for all Patients Discharged From the Speciality of General Practice in Perth & Kinross Community Hospitals April 1997-March 2000

Age	Female % (59.7%)	Male % (40.3%)	Total %
0 – 44	94(4%)	80(5%)	**174(5%)**
45 – 54	71(3%)	96(6%)	**167(4%)**
55 – 64	165(7%)	127(8%)	**292(7%)**
65 – 74	354(15%)	350(22%)	**704(18%)**
75 – 84	874(37%)	557(35%)	**1431(36%)**
85 – 94	779(33%)	366(23%)	**1145(29%)**
95+	24(1%)	16(1%)	**40(1%)**
Total	**100%**	**100%**	**100%**

Table 4.7

Mean and Median Ages (years) for all Discharges from the Speciality of General Practice in Perth & Kinross Community Hospitals April 1997–March 2000

Hospital ID	Mean	Median	25th Percentile	75th Percentile
1	73	78	69	84
2	76	80	71	85
3	77	80	71	86
4	73	78	68	85
5	78	80	72	86
Overall	**76**	**79**	71	**86**

Table 4.8

Mean and Median Length of Stay (days) for all Patients Discharged from the Speciality of General Practice in Perth & Kinross Community Hospitals April 1997–March 2000

Hospital ID	Mean(SD)	Median	Range
1	14(26)	7	1 - 370
2	22(45)	10	1 - 477
3	21(45)	12	1- 499
4	19(46)	8	1- 760
5	19(39)	9	1 -459
Overall	**20(42)**	**9**	**1 - 760**

Table 4.9

Number of Patients by the Number of Discharges From the Speciality of General Practice Within Year and Hospital April 1999-March 2000

Hospital Identification	Year	1 Discharge	2 Discharges	3 Discharges	4 Discharges	5+Discharges
	1997-1998	91	22	5	1	0
1	1998-1999	87	18	5	2	0
	1999-2000	72	15	10	1	1
	1997-1998	222	54	9	2	3
2	1998-1999	207	41	10	2	6
	1999-2000	168	41	9	5	1
	1997-1998	174	44	17	6	3
3	1998-1999	195	33	20	2	1
	1999-2000	199	39	13	6	5
	1997-1998	114	26	6	1	2
4	1998-1999	98	31	4	2	1
	1999-2000	101	20	6	4	1
	1997-1998	129	34	11	5	1
5	1998-1999	119	29	18	3	2
	1999-2000	115	23	9	2	2
Totals		**2091**	**470**	**162**	**44**	**29**

Table 4.10

Summary of Inpatient Discharge Data from Perth & Kinross Community Hospitals – April 1999-March 2000

Hospital ID	Number of Discharges	Admission Type			Mean Age Years	Median Years	Mean Length of Stay (SD)	Median Days
		Emergency	"Step Down"	Elective				
1	475	385(81.1%)	85(17.8%)	5(1.1%)	73	78	14(26)	7
2	1068	721(67.5%)	331(30.9%)	16(1.5%)	76	80	22(45)	10
3	1082	773(71.4%)	295(27.3%)	14(1.3%)	77	80	21(12)	12
4	605	443(73.2%)	162(26.8%)	0(0%)	73	78	19(46)	8
5	723	594(82.1%)	122(16.9%)	7(1.0%)	78	80	19(39)	9
Totals	**3953**	**2916(75.1%)**	**995(23.9%)**	**42(1%)**	**76**	**79**	**20(42)**	**9**

Table 4.11

Summary of Inpatient Type from the Speciality of General Practice from Perth & Kinross Community Hospitals
April 1997-March 2000

Admission Type	Emergency	'Step down'	Elective
Mean Stay	17	28	17
Mean Age	75	78	77
Number Females	1693	645	23
Number Males	1223	350	19

Table 4.12

Characteristics of Perth & Kinross Where General Practitioners Have Admitting Rights to Local Community Hospitals

Hospital	Practice	No of Partners WTE(PT)	List Size	No >65	% over 65	Arbuthnott %	Deprivation Index	Distance From DGH (miles)
1	A	3.5	3769	818	21.7	1.74	-4.96	30
2	B	5.75	7613	1555	20.4	1.94	1.91	17
	C	2	3412	781	22.9	0.88	3.54	17
	D	2	2271	431	18.9	0.53	-4.22	16
	E	3	4121	751	18.2	1	-2.48	23
3	F	5.5	7367	1405	19.1	1.74	0.99	20
	G	2.5	3307	619	18.7	0.79	2.12	20
	H	2.5	2288	716	31.3	0.67	-3.05	28
4	J	5	4405	1126	25.6	1.21	-7.57	28
5	K	6	7652	1488	19.5	1.86	-6.75	14
Totals		**37.75**	**46205**	**9690**				

* *Practice centre located on same site as community hospital*

Table 4.13

Characteristics of Perth & Kinross Practices Where General Practitioners Have No Admitting Rights to Local Community Hospitals

Practice	No of Partners WTE (PT)	List Size	No >65	% of List Size	Deprivation Index	Arbuthnott %
L	2	2539	463	18.2	-9.86	0.6
M	2	2589	596	19.7	-4.56	0.66
N	3	3029	3029	19.7	-1.5	0.74
O	1	2002	390	19.5	-5.21	0.49
P	1	808	114	14.1	-6.5	0.16
Q	4	6561	888	11.8	-11.25	1
R	2.75	4634	617	13.3	-10.91	0.99
S	3.5	5617	1016	18.1	0.52	1.35
T	5	8484	1428	16.8	2.83	2.01
Totals	**24.25**	**36263**	**8541**			

Practice	No of Partners WTE (PT)	List Size	No >65	% of List Size	Deprivation Index	Arbuthnott %
U	5	9295	1628	17.5	0.5	2.2
V	1.75	2881	386	13.4	4.97	0.66
W	1	1765	349	19.6	3.58	0.48
X	6	10628	1935	18.2	-2.98	2.46
Y	3.5	5247	864	16.5	3.71	1.24
Z	6	9839	1557	15.8	3.35	0.99
AA	4	6089	896	14.7	3.04	1.38
BB	3	3802	761	20	-4.5	2.01
	30.25	**49546**	**8376**			

Table 4.14

Summary of Perth & Kinross Practice Characteristics

	Community Hospital Practices (n=10)	Non Community Hospital Practices (n=17)
Mean (SD) No of partners (WTE's)	3.78 (1.62)	3.21 (1.65)
Mean (SD) List size per partner	1235 (243)	1533 (300)
Mean (SD) No of practices with female partners	0.80 (0.79)	1.24 (0.66)
Single handed practices	0 (0.0%)	3 (17.6%)
Training practices	6 (60.0%)	5 (29.4%)
Minor surgery	10 (100%)	15 (88.2%)
Chronic disease management clinics	9 (90.0%)	15 88.2%)
Mean (SD) Cervical screening	86.7% (3.5%)	87.8% (2.9%)
Mean (SD) Jarman index	-2.05 (3.95)	-2.05(5.44)
Mean (SD) Arbuthnott	1.15 (0.51)	1.15 (0.70)
Mean (SD) Distance from DGH (mls)	21.3 (5.68)	8.6 (11.90)
Mean (SD) general medical Discharge rate per 1000	79.3 (20.5)	67.6 (14.3)
Mean (SD) general medical Discharge rate per 1000 >65	236.4 (61.6)	222.1 (37.2)
Mean (SD) special medical Discharge rate per 1000	18.5 (3.2)	19.1 (4.3)
Mean (SD) special medical Discharge rate per 1000 >65	39.8 (9.4)	44.3 (10.9)

Table 4.15

Summary of 'General Medical' (General Medicine, Geriatric Assessment, General Practice) Discharges for all Perth & Kinross Community Hospital Practices April 1997-March 2000

Hospital Designation	Practice	% Total Medical Discharges Discharged from CH	Mean Discharge Rate per 1000 Population	Mean Age Sex Standardised Discharge Ratio	Mean Discharge Rate per 1000 Population Aged 65+
1	A	47.1	79.3	0.98	216.7
2	B	30.8	77.2	1.02	247.7
	C	37.0	69.8	1.84	178.6
	D	24.8	56.8	0.78	180.8
	E	18.5	41.8	0.57	152.1
3	F	33.0	76.5	1.04	249.9
	G	31.8	111.8	1.49	363.6
	H	23.9	93.1	0.93	222.9
4	J	40.6	100.7	1.14	261.4
5	K	36.8	85.7	1.16	290
Totals		**32.4**	**79.3**	**0.99**	**236.4**

Table 4.16

Summary of 'General Medical' (General Medicine, Geriatric Assessment, General Practice) for Non Community Hospital Practices April 1997-March 2000

Practice	Mean Discharge Rate per 1000 population	Mean Age Sex Standardised ratio	Mean Discharge rate per 1000 pop aged 65+
L	48.4	0.67	154.1
M	54.3	0.75	168.1
N	73.2	0.95	218.9
O	65.9	0.87	215.1
P	50.9	0.85	209.5
Q	49.6	0.81	230.3
R	48.9	0.82	219.3
S	63.9	0.89	207.6
T	78.5	1.18	210.9
U	66.4	0.95	201.1
V	65.9	1.09	217.3
W	90.7	1.25	292.2
X	80.4	1.15	258.4
Y	79.7	1.20	235.4
Z	68.9	1.08	202.9
AA	68.8	1.1	231.5
BB	95.9	1.27	303.4

Table 4.17

Summary of Specialist Discharges for All Perth & Kinross Community Hospital Practices. April 1997-March 2000

Hospital Designation	Practice	Mean Discharge Rate per 1000 population	Mean Age Sex Standardised ratio	Mean Discharge rate per 1000 pop aged 65+
1	A	14.0	0.42	21.7
2	B	19.2	0.61	44.6
	C	18.7	0.59	38.8
	D	13.7	0.45	27.0
	E	16.4	0.55	42.4
3	F	20.4	0.69	42.6
	G	22.3	0.76	53.4
	H	22.8	0.64	47.6
4	J	20.3	0.57	42.7
5	K	17	0.56	36.7

Table 4.18

Summary of Specialist Discharges for All Perth & Kinross Non Community Hospital Practices - April 1997-March 2000

Practice	Mean Discharge Rate per 1000 population	Mean Age Sex Standardised ratio	Mean Discharge rate per 1000 pop aged 65+
L	12.2	0.41	27.6
M	18.6	0.62	29.3
N	22.8	0.72	55.5
0	25.5	0.79	45.5
P	20.5	0.80	52.6
Q	20.0	0.73	58.8
R	19.2	0.72	42.9
S	21.5	0.74	59.9
T	27.8	0.98	35.6
U	16.1	0.56	32.3
V	19.9	0.76	46.5
W	20.1	0.67	35.0
X	20.1	0.69	60.7
Y	12.7	0.46	40.6
Z	14.0	0.51	41.6
AA	13.1	0.49	34.6
BB	20.4	0.67	53.6

Table 4.19

Adjusted Average Discharge Rates (+CIs) for "General Medical" Discharges From Community Hospital and Non Community Hospital Practices April 1997-March 2000

(a) General Medicine

The rates in the following table allow for the regression of discharge rate on (i) standardized age-sex ratio, and (ii) list size.

Adjusted Average Discharge Rates (+CIs) for General Medicine

	rate per 1000		rate per 1000 65+	
Year	CH GPs	non-CH GPs	CH GPs	non-CH GPs
1997-98	78.7 (74.6, 82.8)	68.3 (63.0, 73.6)	237 (221, 253)	215 (194, 236)
1998-99	78.7 (74.4, 83.0)	68.1 (62.6, 73.6)	233 (215, 251)	226 (203, 249)
1999-00	78.8 (73.9, 83.7)	67.8 (63.8, 71.8)	234 (214, 254)	232 (215, 249)

Table 4.20

Adjusted Discharge Rate Differences for "General Medical" Discharges for Community Hospital and Non Community Hospital Practices April 1997-March 2000

Discharge Rate Differences for General Medicine

Year	(1) rate per 1000	(2) rate per 1000 65+
1997-98	10.4 (5.1, 15.7)	21.6 (0.9, 42.3)
1998-99	10.6 (5.0, 16.2)	7.1 (-16.3, 30.5)
1999-00	11.0 (4.5, 17.5)	2.8 (-23.9, 29.5)

Table 4.21
Age Sex Standardised "General Medical" Discharge Ratios for Community Hospital and Non Community Hospital Practices April 1997-March 1998

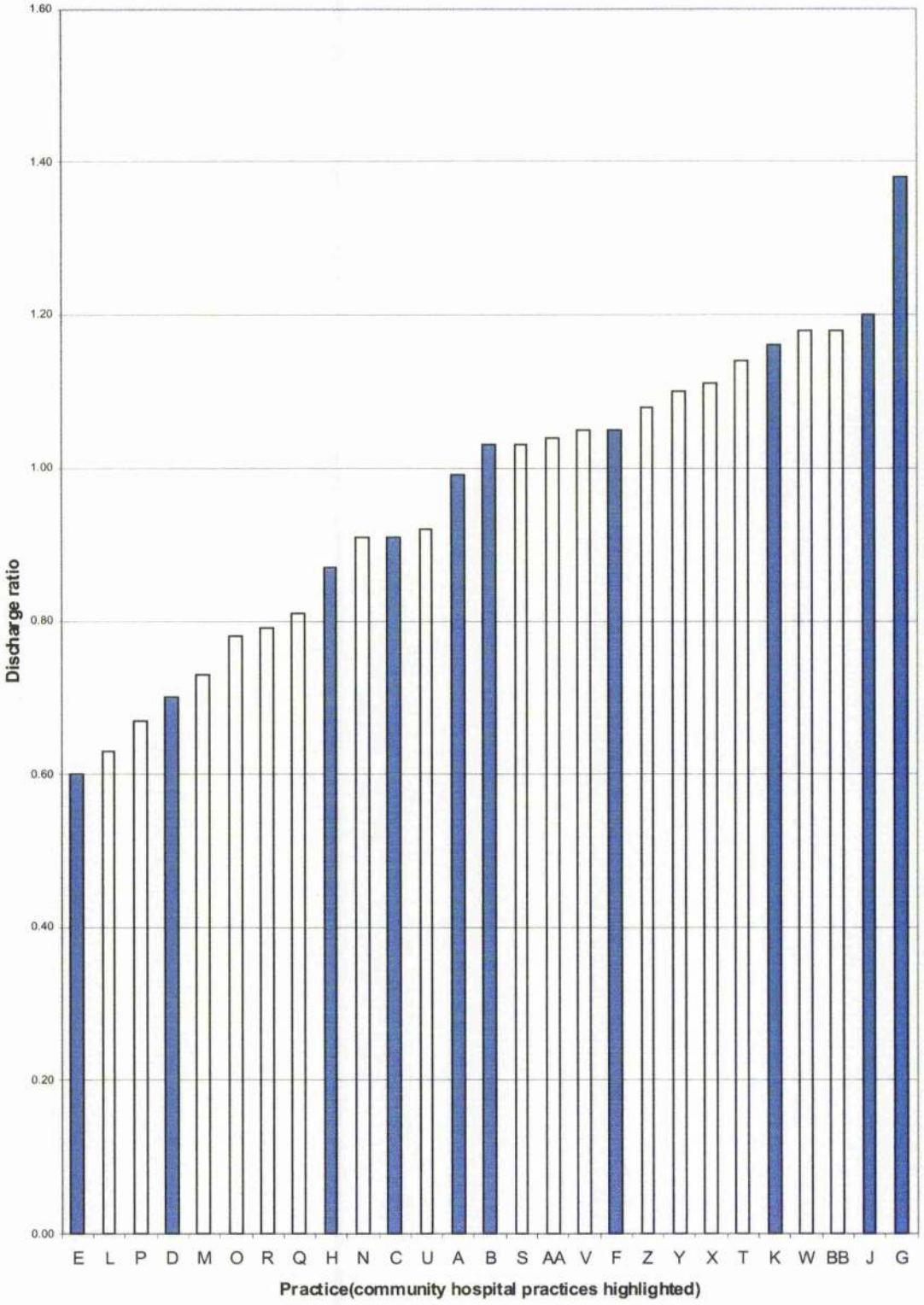


Table 4.22
Age Sex Standardised " General Medical" Discharge Ratios for Community Hospital and Non Community Hospital Practices
April 1998- March 1999

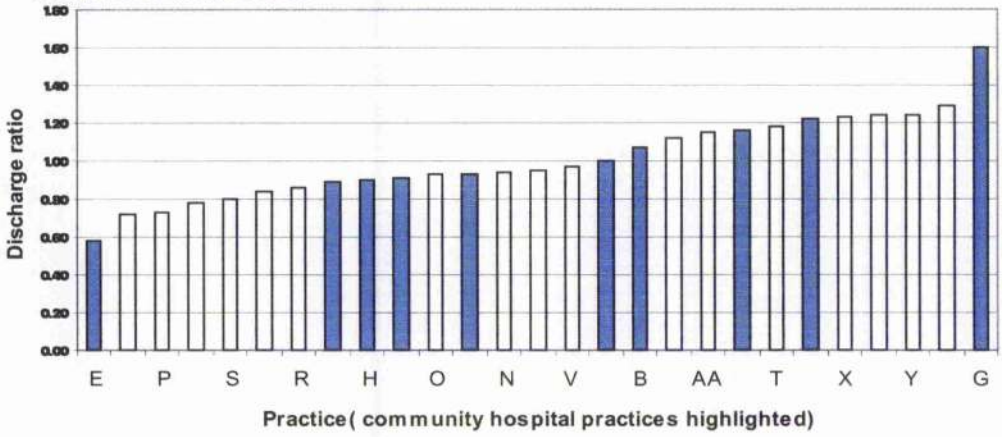


Table 4.23
Age Sex Standardised " General Medical" Discharge Ratios for Community Hospital and Non Community Hospital Practices
April1999-March 2000

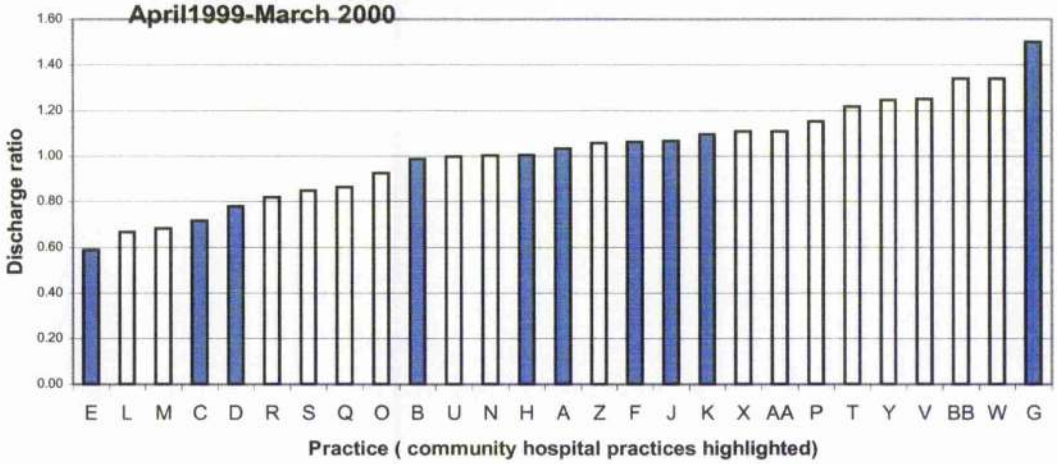


Table 4.24

Adjusted Average Discharge Rates (+CIs) for Specialist Medicine From Community Hospital and Non Community Hospital Practices April 1997-March 2000

(b) Specialist Medicine

Adjusted Average Discharge Rates (+CIs) for Specialist Medicine

	rate per 1000		rate per 1000 65+	
Year	CH GPs	non-CH GPs	CH GPs	non-CH GPs
1997-98	18.8 (17.8, 19.8)	17.1 (16.1, 18.1)	40.1 (32.2, 48.0)	35.6 (27.3, 43.8)
1998-99	18.9 (18.0, 19.8)	17.0 (16.2, 17.9)	37.5 (29.9, 45.1)	37.2 (30.3, 44.1)
1999-00	18.9 (17.8, 19.9)	17.2 (16.2, 18.1)	40.3 (29.0, 51.6)	48.6 (37.9, 59.3)

Table 4.25

Adjusted Discharge Rate Differences for Specialist Medicine for Community Hospital and Non-Community Hospital Practices April 1997-March 2000

Discharge Rate Differences for Specialist Medicine

Year	(1) rate per 1000	(2) rate per 1000 65+
1997-98	1.7 (0.4, 3.0)	4.5 (-5.8, 14.8)
1998-99	1.9 (0.7, 3.1)	0.3 (-9.8, 10.4)
1999-00	1.7 (0.3, 3.1)	-8.3 (-23.6, 7.0)

Table 4. 26
Age Sex Standardised Specialist Medicine Discharge Ratios for Community Hospital and Non Community Practices
April 1997-March1998

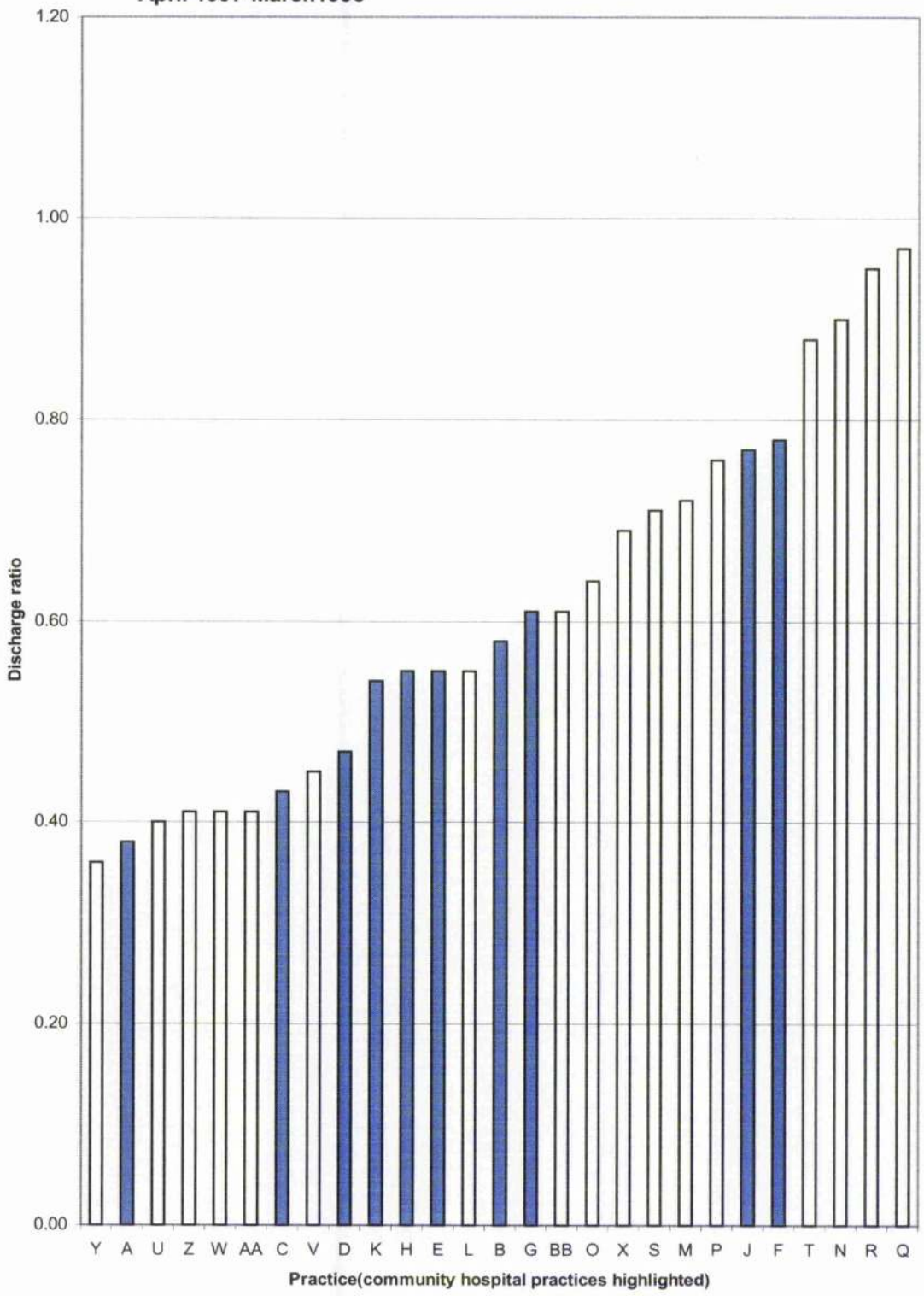


Table 4.27
Age Sex Standardised Specialist Medicine Discharge Ratios for Community Hospital and Non Community Hospital Practices April 1998- March 1999

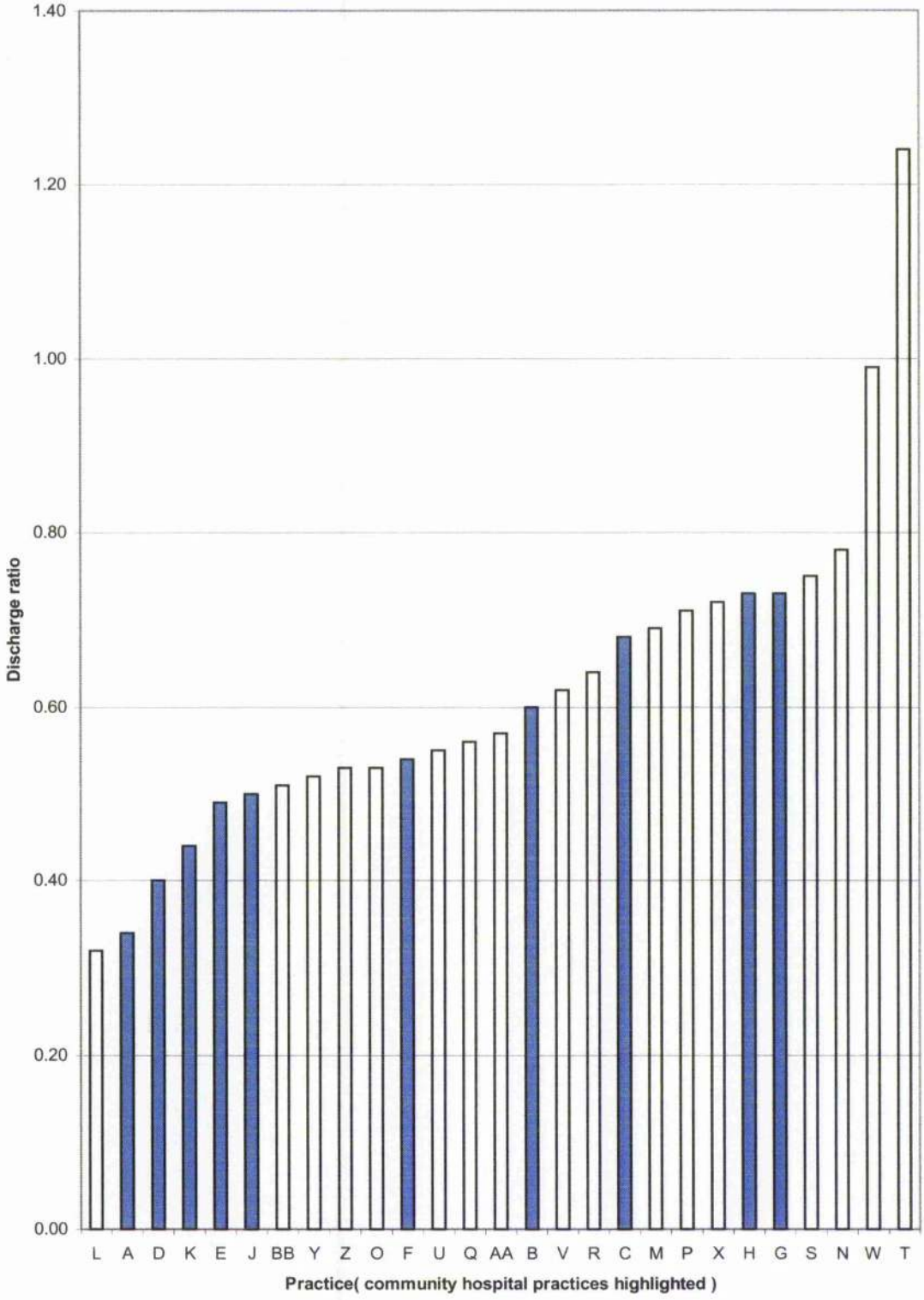


Table 4.28
Age sex standardised specialist discharge ratios for community hospital and non community hospital practices
April 1999-March 2000

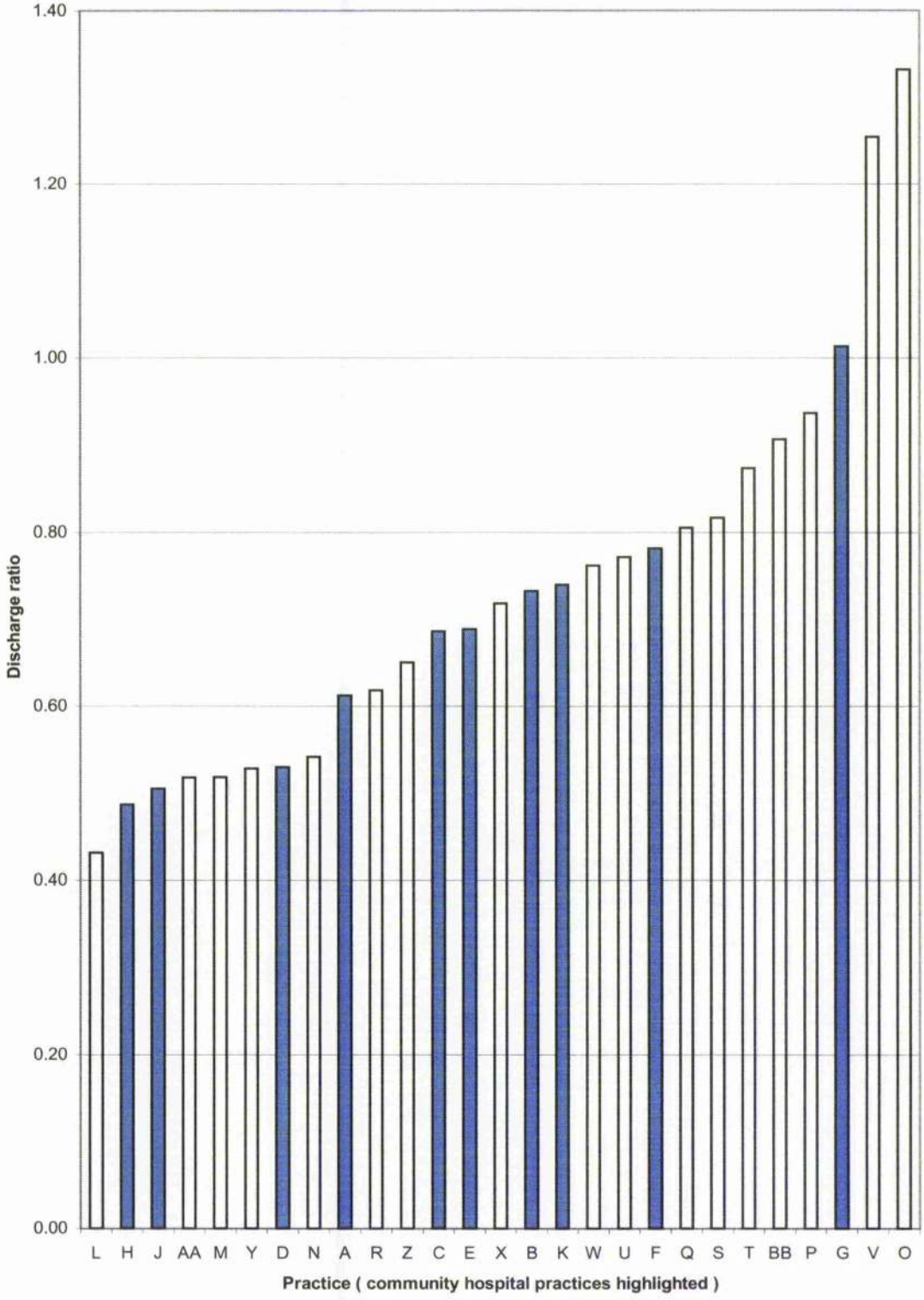


Table 4.29

Spearman Rank Correlations Between Discharge Rates From Community Hospitals and Practice Characteristics (n=27)

	General Discharge Rates from Community Hospitals			Specialist Discharge Rates from Community Hospitals		
Factor	**Population**	**Population Age/Sex Adjusted**	**Population over 65**	**Population**	**Population Age/Sex Adjusted**	**Population over 65**
Access to CH	**0.325**	**-0.030**	**0.128**	**-0.049**	**-0.310**	**-0.167**
Distance to DGH	**-0.037**	-0.364	**-0.008**	**0.173**	**0.026**	**0.059**
Population over 65	0.540	**0.082**	**0.174**	**0.196**	**-0.227**	**-0.115**
Jarman Score	**0.280**	0.464	**0.065**	**-0.038**	**0.012**	**-0.069**
Arbuthnott	**0.219**	0.334	**0.180**	**-0.155**	**-0.164**	**0.048**
Single-handed	**-0.068**	**0.000**	**0.045**	0.326	0.371	**0.061**
No Female GPs	**0.187**	0.456	0.341	**-0.088**	**0.047**	**0.018**
Training Practice	0.474	0.421	**0.319**	**-0.039**	**-0.102**	**-0.203**
Minor Surgery.	-0.363	-0.418	-0.418	**-0.145**	**-0.055**	**-0.036**
CDM Programme	**-0.151**	**-0.030**	**-0.121**	**-0.303**	**-0.204**	**-0.091**
Cervical Screening	**-0.269**	-0.354	**-0.184**	**0.044**	**0.025**	**-0.007**
No Partners	**0.304**	0.352	**0.294**	**-0.137**	**-0.221**	**0.063**
List Size	**0.152**	**0.312**	**0.187**	**-0.165**	**-0.111**	**0.076**

Correlations in bold statistically significant at 10% level or more

Table 4.30

Results of Multiple Linear Regressions on Discharge Rates From Community Hospitals (n=27)

	Unadjusted General Discharge Rates from Community Hospitals			Age Sex Adjusted Discharge Rates from Community Hospitals		
Factor	**Regression Coefficient**	**Standard error**	**p-value**	**Regression coefficient**	**Standard error**	**p-value**
Population over 65	2.631	0.636	<0.001	-	-	-
Jarman Score	-	-	-	0.015	0.006	0.020
Training Practice	9.421	4.822	0.064	0.199	0.061	0.003
Minor Surgery	-	-	-	-0.349	0.133	0.005
Cervical Screening	-1.83	0.744	0.022	-	-	-
No Female Partners	7.16	3.41	0.048	-	-	-

Variables selected if statistically significant at 10% level or more

Table 4.31

The Ten Principal ICD 10 Disease Classifications. Recorded in Perth & Kinross Community Hospitals April 1997–March 2000

1. Disease of the circulatory system (100 – 199) (664)	16.8%
2. Symptoms, signs and abnormal clinical ad laboratory findings, not elsewhere classified (Roo – R99) (555)	14.0%
3. Diseases of the respiratory system (J100 – J99) (547)	13.8%
4. Neoplasms (C00 – D48) (430)	10.9%
5. Injury, poisoning and certain other consequences of external causes (S00 – T98) (390)	9.9%
6. Diseases of the musculoskeletal system and connective tissue (M00 – M99) (308)	7.8%
7. Mental and behavioural diseases (F00 – F99) (194)	4.9%
8. Diseases of the digestive system (K00 – K93) (191)	4.8%
9. Diseases of the nervous system (G00 – G99) (179)	4.5%
10. Disease of the genito urinary system (M00 – N99) (137)	3.5%

Chapter 5

5 The Qualitative Approach

This chapter examines the rationale of applying a qualitative approach to the question: why do general practitioners admit patients to community hospitals?

5.1 Background

The retrospective analysis of Perth & Kinross community hospital activity showed the need for further research. It was clear from the data that there were wide variations in referral patterns between practices and individual partners. There was a strong correlation between training status and a high referral rate and a weaker association between other practice proxy measures such as the provision of minor surgery services and a low referral rate. (Table 27). However it was clear that the wide variations identified could not be explained by practice characteristics alone and that individual practitioner factors must be operating. This lack of direct relationship between such variables and referral rates is, perhaps, not surprising. Referral to hospital is a social behaviour subject to many diverse influences including; the patient and their illness, the referring doctor and how he understands and responds to the patient and the context in which the decision to admit or not to admit is made. (Newton, Hayes, & Hutchinson.A. 1991; Tooling Smith 1985; Wilkin 1992).

It is argued that qualitative research methods are the most suitable for exploring and understanding complex social behaviours that cannot be controlled or divided and studied

in small segments and how these behaviours relate to the context in which they operate. (Guba & Lincoln 1981; Patton 1990; Pope & Mays 1995). Such methods can provide a deeper understanding of poorly understood or sensitive topics and can give a sensitive insight into thoughts and processes involved. They can identify the range of attitudes or beliefs on a subject and provide explanations for behaviour and attitudes. (Britten & Fisher 1993).

Qualitative methods strive to understand a phenomenon as a whole. There is a search for totality, the unifying nature of an inclusive explanation. This is a sharp contrast to the quantitative experimental approach. This hypothetic deductive approach requires a specific research hypothesis before data collection begins. It seeks to relate variables independently of the context in which they are observed and measured. This is not to diminish the importance of the quantitative approach. What is important is that the approach is appropriate to the nature of the enquiry. To determine the efficacy of a new drug a quantitative approach is obviously the correct one. However, to find out how the patients felt about the drug then a qualitative enquiry is going to be far more likely to provide useful information. It is to recognise that depending on the research questions statistical portrayals must be interpreted and given human meaning.

In the long term a deeper understanding of complex health issues will require the combining of the two approaches. A hypothetical deductive approach may be able to determine and quantify for instance, outcomes and treatments within some healthcare system. It may also be able to determine relationships among these variables and determine how to portray them statistically. However the primary critique of this logic is that such an approach oversimplifies the complexities of real-world experiences. It misses major factors

of importance that are not easily quantified and fails to portray a sense of the "whole" in terms of the system studied.

Qualitative research methods are now recognised as a valuable tool for trying to achieve an understanding of the "whole" system. However, it is important to understand the thinking and philosophical approach behind such methodologies in order to appreciate both the strengths and the limitations of the tool. In this chapter the philosophy behind qualitative methods and enquiry, the methodology required to obtain trustworthiness of the results and the potential value, interpretation and transferability of such a study will be discussed.

5.2 The Philosophy of Qualitative Enquiry

How humans communicate and behave is part of a dynamic social world in which individuals attribute a sense of significance to their environment while actively constructing ongoing meaningful interactions. In that context a socially constructed 'reality' can be defined as a phenomenon only partially subject to personal will but which is dependent on human awareness in contrast to a biological or physical constant which exists independent of human awareness. (Berger & Luckmann 1971).

Knowledge about this reality may be variably expressed but necessarily reflects a subjective conviction about what is 'real' and what is the nature of this reality. Such social knowledge and reality therefore depend upon the individual's viewpoint, which in turn is heavily dependent on the context in which they find themselves. This knowledge will dictate behaviour, so leading to the subsequent reality of their response as others may witness it. The personal reality of one may affect their actions and therefore the actual reality as seen by others. Both are highly context specific.

The researcher therefore has to question what is the nature of reality (ontology)? What is the relationship between the researcher and the known (epistemology)? How do we gain knowledge of the world (methodology)? (Guba & Lincoln 1981). The researcher is *"bound within a net of epistemological and ontological premises which – regardless of ultimate truth or falsity – become probably self validating*". (Bateson 1972).

The net that contains the researchers ontological, epistemological and methodological framework is the basic set of beliefs which guides action, namely a paradigm. (Guba 1990). There are many interpretative paradigms: positivist/post-positivist, constructivist, feminist, ethnic and Marxist. (Denzin & Lincoln 1998). In this research a constructivist paradigm has been adopted. This assures a relativist ontology (there are multiple realities), a subjectivist epistemology (researcher and subject create understandings), and a naturalistic (in the social world) set of methodological procedures. (Patton 1990).

Qualitative research stresses the socially constructed nature of reality, the intimate relationship between the research and what is studied, and the situational constraints that shape enquiry. It seeks answers to questions that stress how social experience is rooted and given meaning. As each individual may hold their own personal view of reality, the world can be said to consist of multiple realities. Assessing the individual's view of reality is the key to interpretative research. It is the lens through which their actions can be brought into focus and understood. A qualitative paradigm requires an acceptance that an individual's reality is a social construction, which may shift and change and is not a fixed truth. (Berger & Luckmann 1971). Many authors accept that observed reality is inseparable from the context in which it is perceived. (Berger & Luckmann 1971; Denzin & Lincoln 1998). The

need to describe this context in detail is a fundamental imperative of the qualitative research process (Habermann-Little 1991). In contrast to quantitative research which, emphasises the measurement and analysis of causal relationships between variables qualitative inquiry seeks an understanding or interpretation of processes by which events are shaped or constructed.

5.3 The Inductive Approach

The constructivist paradigm is an inductive one where hypotheses emerge from the analysis of early data. These hypotheses are subsequently tested and modified as new evidence emerges throughout the data collection and analytical phases of research. Once a few points are mapped out it becomes clear which areas need further study. Schwartz and Strauss drew the analogy with the cartographer:

"Their job is to make a set of integrated observations on a given topic and place them in an analytical framework". (Schwartz & Strauss 1979).

The strategy of inductive research is to allow aspects of the cases studied to provide the landmarks and paths without presupposing in advance what the important routes into the data will be. Theories about what is happening in a setting are grounded in the experience of the respondents rather than imposed on the setting through hypothesis or deductive constructions from those without direct experience of the phenomenon. By focusing on individuals the inductive approach does not limit the expression of these experiences the findings are highly dependent on the specific context. The description of the context is therefore relevant to the interpretation of any theory that emerges from the findings so that the influence of the local world or context on the findings can be assessed. (Glaser & Strauss 1967; Strauss & Corbin 1998).

The qualitative enquiry in this thesis is based on the grounded theory approach of Glaser and Strauss and Corbin. (Glaser & Strauss 1967; Strauss & Corbin 1998). Here theory is derived from the data, systematically gathered and analysed through the research process. The researcher begins with an area of study and allows the theory to emerge from the data through focussed study. Theory derived or "grounded" in the data is more likely to resemble the "reality" than is theory derived by putting together a series of concepts based on experience or solely through experience that has not been systematically gathered or analysed. Here terms such as creditability, transferability, dependability and confirmability replace the usual positivist criteria of internal and external validity, reliability and objectivity (these are separately discussed at the end of this chapter).

5.4 The Researcher as an Instrument of Data Collection and Analysis

"The inquirer is himself the instrument? Differences result from fatigue, shifts in knowledge and co-operation, as well as variations resulting from differences in training, skill and experience among different "instruments". But this loss of rigor is more than offset by the flexibility, insight and ability to build on tacit knowledge that is the peculiar provenience of the human instrument". (Guba & Lincoln 1981).

One of the problems with all research is recognising the potential of the research process to corrupt the research or study findings. This is a particular issue in qualitative studies where the researcher is the main instrument of data collection and analysis (Habermann-Little 1991). (Malterud 1993). It is therefore important to build in to the study mechanisms to protect against this possibility. It is necessary to minimise the extent of researcher bias, or at least make unavoidable biases explicit.

A researcher must adopt a stance of neutrality though this does not mean detachment. Qualitative inquiry depends on and uses the researcher's direct experiences in the world and insights about their experiences. This includes learning from empathy. (Patton 1990). Such empathy, it is argued, comes from being able to understand the position, feelings, experiences and views of those who work in the world that is being researched.

"Hence, insight may be regarded as the core of social knowledge. It is arrived at by being on the inside of the phenomena to be observed .....It is participation in an activity that generates interest, purpose, a point of view, value, meaning and intelligibility, as well as biases". (Wirth 1949).

Qualitative methods have developed a discrete series of techniques designed to minimise the possibility of researcher bias or data corruption. These are described below.

5.5 Trustworthiness

This term is used to encompass four key elements; credibility, dependability, Confirmability and transferability necessarily present if a study is to be regarded as valuable and worth communicating. (Guba & Lincoln 1981).

Any research with a potential impact on our knowledge base must have some measure of credibility. It must commence in a manner that will allow application. The process by which its findings were obtained must be appropriate and explicit. Guba and Lincoln first reported these connected qualities as "trustworthiness". (Guba & Lincoln 1981). The requirement for qualitative research to access and include multiple realities, collect data in context and accommodate researcher biases has lead to a considerable body of work in this field. (Chapple & Rogers 1998; Popay, Rogers, & Williams 1998; Pope & Mays 1995). Despite a lack of agreement upon minimum standards there is agreement that validity,

reliability and generalisability as traditionally applied are inappropriate and that an alternative terminology is required to describe the 'trustworthiness' of qualitative enquiry.

5.5.1 Credibility

This is a difficult concept when by definition one cannot assume a single objective reality in a qualitative inquiry. Erlandson et. al defined credibility as:

"The compatibility of the constructed realities that exist in the minds of the inquirers respondents with those that are attributed to them". (Erlandson et al. 1993).

A study can only be said to be credible if the findings are considered to be truthful and worthy of interpretation and communication. To achieve this the study design, data collection and analysis must be clearly described and reflect the original aim appropriately. Several authors have described a number of details that should be included in each aspect and the ones relevant to the study reported are detailed below.

5.5.2 Study Design

- The research process should be clearly described. (Hamberg et al. 1994; Hobbs 1992).
- The study design should be the most appropriate for the purpose. (Dowell, Huby, & Smith 1995).
- Design should be flexible to allow for inclusion of complexity of the entire *situation.* (Hamberg, Johansson, Lindgren, & Westman 1994; Popay, Rogers, & Williams 1998).

5.5.3 Data Collection

- Sampling provides symptomatic coverage of the necessary groups. (Dowell, Huby, & Smith 1995; Hobbs 1992; Popay, Rogers, & Williams 1998).
- Data collection is sensitively conducted. (Hamberg, Johansson, Lindgren, & Westman 1994; Pope & Mays 1995; Reason & Rowan 1981).
- Attention paid to interviewing technique and data collection methods. (Dowell, Huby, & Smith 1995; Hamberg, Johansson, Lindgren, & Westman 1994; Reason & Rowan 1981).

5.5.4 Analysis

A number of features designed to systematically substantiate and confirm qualitative analysis have been described. These are:

- Clear analysis procedure. (Dowell, Huby, & Smith 1995; Hamberg, Johansson, Lindgren, & Westman 1994; Pope & Mays 1995).
- Critical reflection (persistent and penetrating reviewing of the theories emerging from the data) (Hamberg, Johansson, Lindgren, & Westman 1994).
- Constant comparison employed (continual process of testing the preliminary conclusions drawn from data against new data as it is collected) (Strauss & Corbin 1998).
- Inclusion of all cases sampled. (Crabtree & Millar 1992).
- Study includes the use of a mentor to challenge analysis through regular debriefings. (Hamberg, Johansson, Lindgren, & Westman 1994; Reason & Rowan 1981).

- Search for disconfirming data (a systematic search for instances or events that contradict the findings as presented. (Hobbs 1992; Kuzel & Like 1991; Reason & Rowan 1981).
- (Hamberg, Johansson, Lindgren, & Westman 1994).
- Analysis made explicit by the use of rich description.(Hobbs 1992; Popay, Rogers, & Williams 1998).
- The role and impact of the researcher understood. (Dowell, Huby, & Smith 1995; Hoddinott & Roisin 1997).
- Triangulation of analysis. (the use of more than one investigator to verify or question the findings). (Hamberg, Johansson, Lindgren, & Westman 1994; Kuzel & Like 1991; Popay, Rogers, & Williams 1998; Pope & Mays 1995).
- 'Member checking' (interpretation of findings reported and confirmed with initial respondents) (Hamberg, Johansson, Lindgren, & Westman 1994; Hobbs 1992; Mays & Pope 1995).

5.5.5 Dependability

Dependability describes the extent to which the study method has engaged with or focused on the research question. Only the consistent pursuit of relevant data ensure that a reliable answer can be put forward. To ensure this focus the following have been suggested as important:

- Study design should build in flexibility to be able to respond to findings. (Hamberg, Johansson, Lindgren, & Westman 1994).
- Date Collection and analysis should be iterative. (Hamberg, Johansson, Lindgren, & Westman 1994; Reason & Rowan 1981).

- Volume and duration of contact with respondents should be substantial. (Hamberg, Johansson, Lindgren, & Westman 1994).
- Expertise or apparent understanding of researchers should be adequate. (Dowell, Huby, & Smith 1995; Pope & Mays 1995).
- All data that may provide cross bearing on meaning should be included. (Hobbs 1992; Pope & Mays 1995).
-

5.5.6 Audit Trail

An audit trail can enhance dependability by providing reassurance that the research process has been honest and openly conducted. Various authors have determined the desirability of five categories of materials that should be available for examination in any audit of qualitative research. (Erlandson, Harris, Skipper, & Allen 1993; Guba & Lincoln 1981; Strauss & Corbin 1998).

(1) Raw data (interview guides, notes, and documents)

(2) Data reduction and analysis products ie, peer debriefing notes

(3) Reflective journal kept throughout the whole research process.

(4) Materials relating to intentions and dispositions.

(5) Information relative to any instrument development.

5.5.7 Confirmability

An inquiry is judged in terms of how much the are findings directly related to the outcome of the inquiry and not to the preoccupations of the researcher. (Lincoln & Guba 1985). Qualitative research studies are not reproducible in the sense that a different researcher repeating the study with different data sources could legitimately arrive at different, perhaps apparently conflicting conclusions. This would not necessarily negate the findings

of either study but requires further understanding. There are three possible explanations a) the context of the study and therefore the data differed b) the original data differed because of sampling or collection variation c) the analysis was not properly based on the data perhaps because of researcher basis or assumptions. As the context and sampling approached used should be clearly described the main concern is the analysis. The steps described in the analysis section have been suggested to ensure analysis is robust and based firmly on data.

5.5.8 Transferability

Implementation of an inquiry finding always requires an estimation of applicability in a particular context. When findings are applied in different contexts or populations the concerns about applicability increase. The qualitative approach, based on small, selected samples addresses this issue by describing the intricacies and interrelationships of the context being studied in detail. Sampling in a qualitative inquiry is not statistically representative. It can be difficult to know how the findings can be applied to other situations. This is addressed by describing the different subgroup populations studied in detail. This allows findings to be applied more appropriately when aimed at the relevant group.

For instance, patient satisfaction surveys commonly reveal high levels of satisfaction though dissatisfaction obviously exists. A qualitative study would focus on examples of dissatisfaction and explore their cause. This may confirm that food quality is a problem in one area, perhaps confirmed by observing what is served, whilst the attitude of an individual staff member is the issue elsewhere. These findings may be transferred in the sense that those monitoring satisfaction should include food quality and staff attitude

specifically, and allow the problem to be targeted. However, clearly they should not be generalised to all food supplied and all staff. The context of each area may be highly relevant.

By collecting sufficiently detailed descriptions of data in context and reporting "*rich*" details tentative judgement's about applicability of certain observations for other contexts can be made. (Guba 1981).

It is essential to recognise the difficulties of the qualitative approach to understand how these may be overcome. These methods, if applied with sufficient transparency and rigour, can provide useful answers and explanations about complex behavioural issues that quantitative enquiries could not address.

"Truth can never be obtained in any kind of research. As in traditional medical research, conclusions can only be drawn from proper assessment resting on presented material". (Malterud 1993).

The variability in how general practitioners use community hospitals cannot be explained in simple quantitative terms. For this reason the qualitative approach described in this chapter was adopted and carried out.

Chapter 6

6 Why do General Practitioners Admit Patients to Community Hospitals?

Study 2

This chapter describes an in depth interview study of a purposive sample of Perth and Kinross general practitioners with access to community hospitals. An analysis of the results is presented and an interpretation made of the data obtained in terms of primary and secondary influences on the decision making processes involved.

6.1 Introduction

The study presented in chapter 3 of this thesis showed that 43 general practitioners discharged, on average a total of 1350 patients in any one year from five community hospitals. Three of the hospitals were served by single practices with resident catchment populations of 3950 , 4450 , and 7800 respectively . One was served by three practices with a resident catchment population of 12500 while the largest hospital was served by four practices with a total resident population of 17,500. There were wide variations in the usage of inpatient beds within the hospitals within the admitting group of general practitioners. (Figures 1a,1b). These variations could not be explained in terms of the quantitative results obtained. (Tables 27, 28).

Trying to understand this one aspect of the complex social world of health professional behavior is a process subject to many difficulties and constraints. Qualitative research methods are now recognised as a valuable tool for researching such topics (Chapter 5). It was proposed to try and answer some of these questions by using an approach based on grounded theory as described by Strauss and Corbin.

It can be argued that when a doctor is called in to see a patient then all such patients have the potential to be admitted to hospital. When the patient will benefit from intensive intervention or investigation then the decision to admit to an acute hospital is rarely in question. What is much less clear is what happens when the patient is not acutely ill. What happens when the medical diagnosis is complicated by social and carer factors? What happens the patient is free to exercise choices, which might contradict medical advice? (Armstrong, Fry, & Armstrong 1998; Wilkin 1992). These decisions are potentially made more complex when the alternatives of continuing at home or being admitted to the district general hospital are increased by the availability of a community hospital.

Having a community hospital increases the options for the general practitioner and the patient but at the same time increases the complexities of the decision-making processes involved. It becomes not just a case of home or hospital, it becomes a case of which hospital and who should provide the medical care.

The patient admitted to the community hospital will, in all probability know the admitting general practitioner and may have seen them many times before. Their illness will have become defined in a particular way, inevitably tempered and altered by the unique social circumstances of the patient. The understanding of these elements by the doctor in holistic terms and how that patient prefers to have his or her illness managed will all interplay to determine the background against which any decision to admit will need to be tested.

The general practitioner knows that if the community hospital is chosen then they are taking the responsibility not just for the admitting decision, but also they and their colleagues are taking on responsibility of that patient's further care.

6.2 Methods

This study aimed to identify the principal influences on these decisions and describe how they operate from the general practitioner's perspective. The grounded theory approach used in this study involves a constructivist paradigm as described in Chapter 5. The specific methodology used is described in the following section.

6.2.1 The Role of the Researcher

One major issue had to be considered before commencement of the study, namely the background of the researcher and what influence this might have on data collection or on the analysis. This has been discussed by various authors. (Hoddinott & Roisin 1997; Patton 1990). The reasons why a general practitioner, rather than an experienced qualitative researcher was used to collect and analyse data can be detailed as follows;

- Local knowledge and profile provided unique access to the research group.
- Understanding of the behaviour and culture involved by the researcher enabled in depth interviewing to be better informed.
- Limitations in qualitative techniques and the potential for data bias could be addressed by training and rigorous attention to methodology.

The term bracketing has been used to describe the process whereby the researcher "brackets" out the world and presupposes to identify the data in pure form, uncontaminated by extraneous intrusions. (Patton 1990). In practical terms, this is not without difficulties. It has to be sought through constant awareness by the researcher of the personal issues that

he brings to the study. The researcher has to be totally explicit throughout on the need for absolute rigor in the methodology in order to guard against any unwanted researcher effect.

The researcher has been interested in community hospitals for twenty years. After completing his hospital training he moved into practice keen to have access to a community hospital. He is now the senior partner in one of the practices included in the study. He was the part time clinical director for community services and is currently the lead clinician of the Local Health Care Co-operative. He was therefore well known to the research subjects.

The researcher was one of the founder members of the Scottish Community Hospital Association and is a past chairman. He has published papers on several aspects of the community hospital in Scotland including provision and function, casualty based services, treatment of myocardial infarction and the community hospital as a provider of medical education. (Blair, Grant, & McBride 1986; Grant, Ramsay, & Bain 1997; Grant 1984; Liddell, Grant, & Rawles 1990). The researcher believes that the community hospital can play an important part in the provision of extended primary care. They are often highly valued by both patients and communities alike. He also recognises that many such units have significant problems in terms of poor utilisation of beds and no clear direction in terms of service planning.

The researcher was sensitised from the start to the importance of reflecting upon his professional background and personal characteristics by the detailed preparation and approach to the study that was undertaken. A period of wide background reading was reinforced by an intensive residential course in qualitative research methods and practice

undertaken at the National Institute of Social research in London. Repeated discussions with senior qualitative researchers convinced the researcher that these theoretical disadvantages were offset by the potential benefits of his experience in the field. The safeguards built into the study, which were rigorously applied, are clearly described below.

Taking a six month sabbatical from practice to carry out the research full time was important in achieving the necessary immersion required in the study in order to bring it to a successful conclusion.

6.2.2 Development of the Interview Schedule

The initial interview schedule was drawn up following a review of the literature and discussions with local general practitioner colleagues. The interviewing schedule was piloted with two GP's with admitting rights to community hospitals out with Perth and Kinross. Semi structured interviews were conducted using the guide which was refined and modified to accommodate the developing themes as the study progressed in line with the inductive approach. (Appendix 10.3). It was further informed by the interviewer's knowledge of the respondent's usage patterns of the community hospital.

6.3 Data Collection

Following approval by the Tayside Health Board ethical committee and the Tayside Local Medical Committee, potential respondents were contacted by telephone one to two weeks after receiving a invitation to take part. (Appendix 10.2). On meeting, once consent was obtained and the tape recorder introduced, the researcher explained that he was on a period of extended study leave and was carrying out the research work full time. A considered and consistent introduction was used to try and minimize the effect of any assumptions

respondents may have made about the researcher's views. It was emphasized that this was a research project, their views were the subject of the inquiry and therefore, there was no "right answer" as such. Every respondent was given the opportunity to indicate any areas of concern around either the interviewer or the interview process. The respondents were informed that the results would be anonymised for the purposes of any future dissemination or publication. An informal, semi structured interview was then conducted. (McCracken 1988; Patton 1990). All interviews were conducted in either the general practitioners own consulting room or in a quiet room within the surgery. Open accounts were encouraged by the careful introduction described, demonstrating acceptance of their explanations and ensuring time was not pressurised.

Initial interviews focussed on the types of patients respondents admitted to their community hospitals and what they felt were the main issues involved in making the decision to admit a patient. Later interviews concentrated on the feelings of the respondents when they had to decide on admitting patients with more complex medical problems and what they felt were the potential motivators and benefits involved. A summary of each interview was made immediately following the interview including an analysis of how the researcher felt during the interview about any important or unusual issues generated.

Audiotapes were transcribed verbatim in Word 98 according to a standard format to facilitate analysis. A reflexive journal was kept throughout the period of the study. Over the six-month period the number of entries averaged between two and three per week.

6.4 Data Analysis

After transcription the tapes were reviewed and corrected by the researcher. The transcripts were then coded for relevant and significant passages and phrases, grouping similar events, happenings, and objects under a common heading or classification. The approach of Strauss and Corbin was applied with the exception of the conditional matrix, which was not considered appropriate. (Strauss & Corbin 1998). The central ideas in the data were represented as themes. Concepts that were identified as recurrent themes were coded as categories. A hard copy of the transcript was made and the process repeated. Once the researcher was comfortable with the themes and categories assigned the electronic transcript was accessed again and the appropriate passages copied into their respective categories. This process was repeated for all transcripts. The iterative nature of the process was reinforced throughout by repeated periods of immersion in the data. This process resulted in the constant defining and refining of themes and categories, their properties and dimensions. (Appendix 6.3). The data set created was examined repeatedly for recurrent patterns and themes. No transcript was reviewed on less than three occasions and one had twelve review dates recorded. The author accumulated over 740 pages of transcribed interview notes during the study and a further 160 pages of theoretical notes, memos, quotes from raw data, coding, diagrams and theory development.

6.5 Mentoring

An experienced qualitative researcher (JD) was involved in providing support, reflective criticism and debriefing throughout all stages of this enquiry. The initial transcripts were initially coded individually then jointly. Independent coding of four random transcripts, was carried out by JD to monitor consistency. Agreement on coding was obtained in over

90% of the one hundred and three quotations coded. Debriefing by JD was used regularly to ensure the development of the interview guide and to ensure the testing of working hypotheses was explicit and based upon the data. These sessions occurred approximately once every two weeks during the six months of the study. Notes were kept summarizing the issues, concerns and frustrations as well as emerging hypotheses.

6.6 Respondent Validation

Before drawing final conclusions all respondents were invited to a meeting to discuss and challenge the theories and model of the researchers. 33% of the respondents attended the respondents meeting. All comments, where appropriate, were incorporated into the final report.

(All interviews, after being anonymised were copied onto floppy disc and are available for independent scrutiny through contacting the author at the Tayside Centre for General Practice, Kirsty Semple Way, Dundee DD2 4AD).

6.7 Results

6.7.1 Subjects

Data on referral numbers was obtained from Tayside Health Board. The number of admissions per partner per year ranged from seventeen to eighty. (Figure 1a, 1b). A "high" admitter was defined as a full time partner, or equivalent, admitting more than fifty patients per year. A "low" admitter was defined as a full time partner or equivalent admitting fewer than twenty patients per year.

In the five community hospitals in Perth and Kinross 43 general practitioners were identified as having admitting rights. A total of 42 general practitioners were eligible to participate in the study (excluding the researcher). At the beginning of the study, given the relatively small numbers, it was proposed to try and interview all potential respondents in the group. However, one general practitioner was on long-term sick leave and was excluded as was a practitioner on maternity leave. A further general practitioner had recently been involved in community hospital research locally and was also excluded. This left thirty nine potential respondents who where invited in writing to take part. Two declined in writing; one quoted lack of time, the other gave no reason. One practice wished one member to be interviewed as a representative of the partner's views. A further four indicated over the phone a general, non-specific reluctance take part. Of the remaining thirty one, twenty seven were subsequently interviewed. The interviewing was purposeful in terms of ensuring that "high" and "low" admitters, full and part time partners, and a full spread of practices had been included in the process. (Figure1a, 1b). This was important to ensure the sources of data were as diverse and rich as possible. The interviewing was pursued to redundancy. The researcher believing that saturation of data was obtained.

Of the 27 practitioners interviewed there were 22 males and 5 females. 12 of the 43 general practitioners were part time (8 female and 4 male). Out of this group 6 (3 male and 3 female) were interviewed. 20 of the respondents were vocationally trained. Of the remaining seven, 5 were over fifty and had completed a mixture of hospital posts before coming into general practice. One of the non-vocationally trained practitioners had the MRCGP and one the MRCP. 19 of the 20 in the vocationally trained group had the MRCGP with 2 members of this group also having the MRCP (Figures 6.1a, 6.1b). Nine of the vocationally trained group had community hospital experience during their training

compared to one of the non vocationally trained group. Every practice involved in admitting patients to a community hospital had at least one practitioner respondent. The 4 "high" and three of the 4 "low" referring whole time general practitioners were interviewed. (One "low" referrer refused in writing).

6.8 Analysis.

There was a wide variation in how the hospitals were used but all practitioners felt their use of the community hospital provided benefits for patients.

> *"I think it's an optimal care they are getting by being in the community hospital. It's doing what should be done with the time and resources which lots of other people (doctors) don't have". - Practitioner 25:16.*

However when their use of the hospital was probed further, some practitioners expressed elements of defensiveness and doubt.

> *"There is the risk that having worked in the community hospital for years that actually you are beginning to be involved in activities that aren't making much of an impact, but your nose is so close to the ground that you don't know it". - Practitioner 11:25.*

The analysis of the interview transcriptions led to the development of six themes, three contextual or "primary" factors and three non- contextual or "secondary" groups of influences on the admission decision making process. Within these secondary groups of influences seventeen categories were considered independently valuable. In addition, it appeared that the practitioner's perceived level of comfort was the mechanism through which these influences effected the final decision on where to admit each patient.

The relationship between the individual case, and the primary and secondary influences on the decision making process are presented diagrammatically as a model that shows how these factors can potentially influence the decision making process through the perception of "comfort or "discomfort". (Figure 6.2 6.3). A further three categories were identified that were not relevant to the final model developed. (Figure 6.3).

This model was continually challenged by a mentor (JD). For instance the idea that different "levels" of admission could be identified indicating different levels of medical severity and need. This was not sustainable as it became clear that what the data supported was a "spectrum" of admissions with no clearly definable "levels" of admissions as was first suggested. There was a progressive distribution of admission "types" characterized at one end of the spectrum by the predominately "*social*"admission, then the "*sociomedical*" and finally the mainly "*medica*l" admission. With increasing complexity of the medical conditions the "medical" admissions became more comparable with district general hospital (DGH) medical admissions.

Similarly the emergence of a comfort/discomfort interaction in the decision making process and whether, as first proposed, this was an issue in all decisions to admit to the community hospital. Such a linkage could not be sustained by the data when it became clear that for many of the admissions the contextual factors were all important to the referring doctors and perceptions of comfort/discomfort had no impact on the decision to admit or not. The comfort/discomfort perception being mainly an issue at the medical end of the admission spectrum.

6.9 Primary Influences

6.9.1 Context of the Potential Admission.

The context at the time of a potential admission emerged from all the interviews as fundamental to the admission process. Three primary influences were identified. (Appendix 6.3). These are described in terms of: **hospital capacity, doctor's capacity** and **patient preference**. The **hospital capacity** was primarily limited by bed availability. This was linked by several respondents to the level of nurse staffing, and the type of admission proposed.

> *"It is the blocked beds, we cannot utilise the beds to bring someone in". – Practitioner 3:30.*

> *"The staffing levels are such that if you have a couple of acutely ill patients it does restrict what they (the nurses) can do for other patients on the ward". - Practitioner 21:10.*

When probed on their admission decisions many practitioners recognised that their feelings at the time were important. Such feelings varied from being positive towards the admission process to the frankly negative. Factors such as their interest in a particular case and the time of day the patient presented were recognised as important in terms of doctor capacity. (Appendix 6.4).

> *"We all have our own thresholds and they vary from day to day. They may also vary depending on how interested we are in a particular condition or how much commitment we feel to a particular patient". - Practitioner 14:80.*

> *"Sometimes you could see it far enough". - Practitioner 13:28.*

All of the practitioners were sensitive to the **patient preference** regarding the admission. This was reported as commonly in favour of a local admission.

> *"Patients overall would prefer to go to the cottage hospital, they always have done simply because of the proximity even for visiting and the fact that it's a much smaller unit and they feel, they certainly would say, that they get much better care there". – Practitioner 16:23.*

If there was adequate **hospital capacity, doctor capacity** and the **patient preference** was favourable, then local admission became an option. This did not automatically mean this occurred as other influences that we have termed "secondary" came into play and the doctor's comfort became the deciding factor.

6.10 Secondary Influences

The secondary influences have been grouped into **professional concerns, personal influences** and **potential benefits.** (Appendix 6.3). Referral to secondary care was likely if any one of these induced appreciable discomfort.

6.10 1 (1) Professional Concerns

All practitioners considered the nature of the presenting problem, recognising increasing concern as the problem became more complex or 'medical'. Several practitioners were ambivalent about the site of care. **Problems with the community hospital** were recognised, particularly a risk of the practitioner failing to take timely management decisions. However, there were also **problems with the district general hospital** in terms of a perceived unfriendly and inappropriate atmosphere for this patient group.

"Sometimes patients come in (to the CH) and there are no clear plans made - they kind of drift". - Practitioner 4:86.

"They just don't want to be in (the DGH) anymore because it's such a hostile environment". - Practitioner 16:8.

"I think that we actually save them from the risks of junior doctors and over-enthusiastic investigations and treatments". - Practitioner 12:40.

When probed about the types of medical problems they would be prepared to handle practitioner's worries about diagnostic and **medical uncertainty** as well as the **process of care** available and the **support systems** for community hospital care emerged.

"We are all afraid of missing the diagnosis which may or may not be obvious, there is always a question of whether we are doing the right thing". - Practitioner 9:136.

"The nurses develop a very close relationship with the patients, they are able to support us and very clearly say what they think". - Practitioner 7:32.

Training and experience as well as **competence** also emerged.

"I think what you do in time is that you realise that what you do is actually working so it is fine so you don't have any problem with that, but I think it adds to your feelings of confidence if you have actually gone on a training course". - Practitioner 10:116.

However several practitioners were concerned how colleagues might perceive their decisions especially if they did not admit locally the types of patient that they were used to looking after (**peer perception**).

"The hospital team would have probably think why is he doing this when he could have managed this locally". - Practitioner 1:29.

6.10.2 (2) Personal Influences

It was clear that admissions with increasing medical complexity resulted in factors related to the practitioner as an individual becoming critical. These could be positive, encouraging local admission, or negative. The most common negative influence was expressed as **anxiety** about the possible outcome of local admission and whether they could give the most appropriate care.

> *"Do you feel the patient is getting the best deal out of this, I mean am I the best person to look after this patient?" - Practitioner 4:108.*

The practitioner's **attitude** towards community hospital work was a recurrent factor.

> *"I realised that that was extra workload for me personally ---but I was just happy to take that on". - Practitioner 6:65.*
>
> *"It's commitment. And wanting to spend your time working". - Practitioner 23:42.*

The practitioner's **confidence** was often an important issue, which was commonly influenced by their previous knowledge of the patient and their illness.

> *"If it is a recurrence of a pre-existing condition that they had before and we know how that has been managed and what has happened and we feel happy with that, then it is reasonable to take them straight into the Cottage, if that is what they want to do". - Practitioner 9:56.*

An example of this was the elderly patient with a malignant effusion who was brought into the community hospital regularly for treatment.

> *"I have had patients with pleural effusions. I've brought them in and I've tapped their chests once a week to relieve their respiratory distress". - Practitioner14:80.*

Practitioners usually valued retaining **control over care**, which helped outweigh other considerations such as workload or anxieties over competence.

"It's a type of benevolent control trying to ensure the best for your patients and trying to be in charge of what is happening for the good of the patient". - Practitioner 4:82.

"It makes it easier from the point of view that the whole thing I think is in your hands. And when you have control over something, personal control over something, I think it's easier to deal with". - Practitioner 26:50.

Many also reported a personal satisfaction from providing an appropriate level of care themselves, which increased **professional motivation.** This was enhanced by the continuity of care provided within the community hospital.

"There's certainly is enormous benefit and job satisfaction from my end from seeing the patient through". - Practitioner 6:119.

"It does strengthen your abilities, your therapeutic skills in certain areas". - Practitioner 3:71.

Perhaps surprisingly financial reward did not feature as an appreciable **personal motivator.**

"Potentially it is an issue and in fact, you know, looking at it, as I say, how much work is involved it seems a reasonably paltry sum, shall we put it like that". - Practitioner 13:80.

Many practitioners revealed general **beliefs** that supported their community hospital practice.

"It gives me opportunities for further development". - Practitioner 1:97.

"It just allows you to be a much more complete doctor". - Practitioner 14:32.

6.10.3 (3) Potential Benefits

All respondents accepted that it was essential for practitioners to identify patients whose care would be **more appropriate in the district general hospital**. Such patients usually required more intensive care and investigation than was available locally. However when this was not required patient care was often **more appropriate in the community hospital**.

> *"I think it is the atmosphere, it's much calmer and you rarely get the very acute problems so there is never the frantic pace that you get in the district general hospitals, and they know the nurses. They just get better quicker". – Practitioner 19:56.*
>
> *"The community hospital always seems to make them better and you know I'm certain in the hustle and bustle of a DGH ward that would not have materialized . You can't measure it but it was tangible. It was obvious they were flourishing and it was just the environment". - Practitioner 25:110.*

6.11 Types of Admission

The influences outlined above cannot be considered without some reference to the spectrum of admissions described. These ranged from the primarily social, through increasing complexity to clearly 'medical' cases. Most patients were elderly with a combination of problems.

> *"The cases are invariable, are almost invariably a mixture of the medical and the social". - Practitioner 11:16.*

When the admission was primarily social and there were no wider issues, then only the three primary contextual factors had to be considered, as the doctors perceived little medical challenge or discomfort. Admission to a district general hospital was unlikely provided a local bed was available, the doctor was not overwhelmed and the patient was content.

Four distinct types of more typical '*sociomedical*' admission could be identified within the spectrum of cases that included a mix of social and medical need. These were admissions for assessment, 'step down' transfers from secondary care, 'can't cope' and anticipatory admissions. Two practitioners used the last approach by making proactive admissions where they identified a need.

6.11.1 The Assessment Admission

All practitioners admitted patients without sufficient home support, to assess the medical problems.

> *"The lady in fact was 93, who'd been living on her own at home. She had a fall at home 10 days previously and hadn't been particularly one way or the other with the fall but on the particular day of admission she'd complained of a chest pain at home. She lived on her own and the ECG that we did then was a little suggestive of myocardial infraction and she was admitted for further assessment".*

Interviewer	*"What were the main reasons around the admission, can you just explain them to me?*
Practitioner	*Clearly the first thing to do was to clarify what was happening with the patient. You know, was she having an*

	acute myocardial infraction? There was an issue of care because she lives on her own and she couldn't remain at home for whatever reason and I guess those were the two sort of main issues at that particular time.
Interviewer	*and how does the community hospital help you clarify this?*
Practitioner	*Well obviously we have the care issue is the first issue and a safe environment where the patient can be looked after. We have facilities for pursuing the diagnosis and giving management on situations such as this with access to investigation*
Interviewer	*So then, what were the factors then which made you decide that its ------ rather than Perth?*
Practitioner	*Em a) there was a bed and b) it was easier in some ways, I felt she would get just as good if not better care being a local facility and also you know I enjoy looking after my own patients you know in a community hospital". - Practitioner 4:2on*

Here the admitting general practitioner was confronted with a very elderly, isolated individual who had experienced symptoms suggestive of a small myocardial infarction. Admission was arranged to establish clarity with regard to the medical problem while at the same time giving the patient social support in hospital. The **hospital capacity** was important in terms of the availability of beds and appropriate investigation. The general practitioner obviously felt he had the **doctor capacity** to take on the admission. There was no expression of discomfort around the decision. Indeed the doctor expressed "enjoyment"

in admitting patients. The general practitioner saw the decision to admit in terms of the opportunity it would provide to allow the patient's problems to be more clearly defined and thus better managed while at the same time meeting the patient's needs for increased social care.

Other respondents saw this type of admission as the community hospital providing a very necessary place of care; a place where some time could be gained in order to focus on what the patient's actual needs were.

> *" The word compromise comes to mind, by admitting them to the cottage hospital for assessment and so on as some kind of staging post". - Practitioner8:22.*

6.11.2 The "Can't Cope" Admission

Many practitioners recognised patients or carers ' cry for help' when the home situation becomes intolerable. A few practitioners were unsure if this was an appropriate use of beds.

> *"I think it's again, "I need a break, I can't cope, I can't mentally cope with this. I think it is the distress that they have". - Practitioner 10:12.*
>
> *"I would say it's usually the result of pressure, for whatever reason. The relative has had enough of the situation and we give in". - Practitioner 5:7.*

Here again the issues were mainly contextual. Was there **hospital capacity**, was there the **doctor capacity** and willingness to take the patient into hospital?

6.11.3 The 'Step Down' Admission

All practitioners identified a group of patients transferred or 'stepped down' from the DGH for less intensive post operative or convalescent care. Some resented such admissions, or

the way in which they were arranged; others acknowledged the pressure on acute units. There was a diversity of views between those who appeared to almost resent this type of admission,

"You often tend to be landed with things". - Practitioner 13:48.

and those who recognized the difference in pressure between the acute unit and the community hospital.

Interviewer	*'But why should you want them back so quickly?'*
Practitioner	*'Well, if truth be told because I think the district general hospital is such a valuable place'. - Practitioner 7:39.*

Here issues of **hospital capacity** and **doctor capacity** were again paramount. The contextual issues dominate the decision making process around the potential admission.

6.11.4 The Anticipatory Admission

Two practitioners used their community hospitals to prevent problems by making proactive admissions where they identified a need. One respondent described this as:

"If you can offer a few days rehabilitation in the hospital for somebody who is not doing well at home you can often prevent a much longer term acute admission". - Practitioner 21:30.

"Their resistance is lowered and what could be regarded as a simple condition initially could escalate into a potentially fatal condition unless they are supervised". - Practitioner 3:8.

These types of admission were clearly dependent on **doctor capacity** and **hospital capacity.** There was sensitivity in the doctor to the health and social risks that the patient might face.

6.11.5 The Medical Admission

Lastly, some practitioners were prepared to admit patients with more challenging medical problems, requiring greater personal skill and increased competency from nursing staff. These patients would normally be admitted a district general hospital but some general practitioners decided to care for them personally. Such patients admitted required greater interventions, such as effusions tapped, transfusions, intravenous fluids or drug therapies that other practitioners did not feel competent to offer.

Inerviewer	*"What sort of medical things come into the hospital?"*
Practitioner	*"If we know the diagnosis and the problem, we are willing to get on with it. I admitted a diabetic who's insulin dependent at ……and who didn't respond to Glucagon or IV glucose very adequately because he kept on collapsing. I just admitted him to the community hospital put a drip up and looked after him". - Practitioner 10:34 and 35.*

This practitioner's decision was influenced by their **attitude** and perceived **competence**. The same doctor put it this way

> *"I think what you do in time is that you realise, what you do is actually working. So it's fine, so you don't have any problem with that, but I think it adds to your feeling of confidence if you've actually gone onto a training course". – Practitioner 10: 6.*

Terminal care was the most common types of medical admission, but again, some doctors were willing to accept greater challenge than others.

Practitioner	*"My most recent admission is a 55 year old who has breast cancer and has been coming into the hospital for regular IV pamidranate infusions . She is now in for terminal care in*

	terms of transfusion , analgesia and symptom control".
Interviewer	*"Why does she need to be in hospital?"*
Practitioner	*"She can't be at home because she's got a pathological fracture of femur and the family just cannot manage that at home".*
Interviewer	*"Do you identify any risks for the patient by her coming into the hospital?"*
Practitioner	*"Yes but she had her first IV in the DGH and had no adverse reactions".*
Interviewer	*"Some people have said that there are workload issues".*
Practitioner	*"I felt that I wanted to give her complete care and for that she needed these IV infusions . I was happy to do that for her here. She was my patient and I was happy to be in control. I realized that was extra workload for me personally but I was just happy to take that on". - Practitioner 6:2 on*

For these types of cases **attitude** and **competence** appeared important. **Training and experience** improved the doctor's comfort. Satisfaction seemed to result from maintaining **control** of the patient's 'complete care', which outweighed the additional workload. Although those clinicians recognised that they provided care many of their colleagues wouldn't offer none reported peer pressure not to do so.

6.12 Comfort in Decision Making

It was clear that different factors operated in every admission decision. Over half of the practitioners spontaneously reported their decisions in terms of 'comfort'. Comfort appeared a common pathway through which secondary influences could affect decisions.

> *"A lot of it would relate to your feeling of comfort with managing certain situations or certain conditions". - Practitioner 4:106.*
>
> *"The difficulty is that when you are getting out with your competence and comfort zone, there is a small problem in that the doctor may feel that he has put a person in the community hospital and then has to phone the district hospital". - Practitioner 7:74.*
>
> *"I'm comfortable with, I suppose, what I would term the simple things, chest infections, chronic obstructive airways disease, maybe increased angina in somebody who is elderly, and terminal care if I think we can stabilize them in hospital". - Practitioner 19:22.*

Comfort/discomfort was doctor specific and thus differed between individuals facing similar situations.

> *"Inevitably someone's comfort will be another person's nightmare and I think that's down to the individual practitioner". - Practitioner 5:26.*

A further practitioner described it as:

Interviewer	*"Can you explain what makes you comfortable or what makes you uncomfortable?"*
Practitioner	*"-----if I don't feel they are going to get any better care in the district general hospital I feel comfortable admitting them. I*

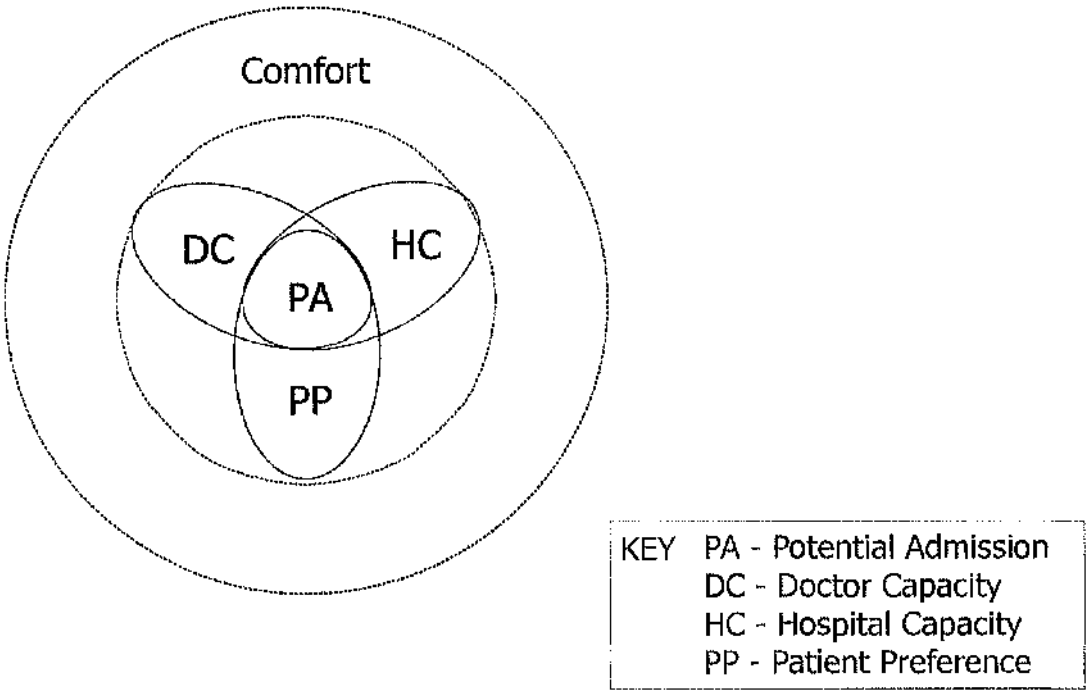
> *think if they have got very complicated acute medical problems then I don't feel comfortable cause I feel I'm out of my depth -------- if I feel really uncomfortable I don't admit them". - Practitioner 19:21 and 23.*

Practitioners weighed up the risks against their **competence, training /experience** and **support systems** (including access to specialist opinions) when making borderline decisions. They described discomfort in this situation as making them reluctant to accept responsibility and a secondary care admission more likely.

6.13 Admission Decision Making Model

In all admissions the critical factors were case and practitioner specific though it was possible to recognise common factors depending on admission type. In admissions from the sociomedical end of the admission spectrum patient, doctor, and the community hospital staff would feel comfortable and only the **primary influences** were considered. These **primary influences** were identified as providing the contextural framework for all admissions. (Figure 6.1).

Figure 6.2 The Contextural Framework



The key factors in the model are the importance of the contextual framework surrounding the potential admission and the presence or absence of significant medical problems able to generate feelings of comfort/discomfort in the admitting doctor. At the "socio-medical" end of the spectrum the questions that concern the general practitioner are "is there a bed available" and "do I have the time and energy to admit?"

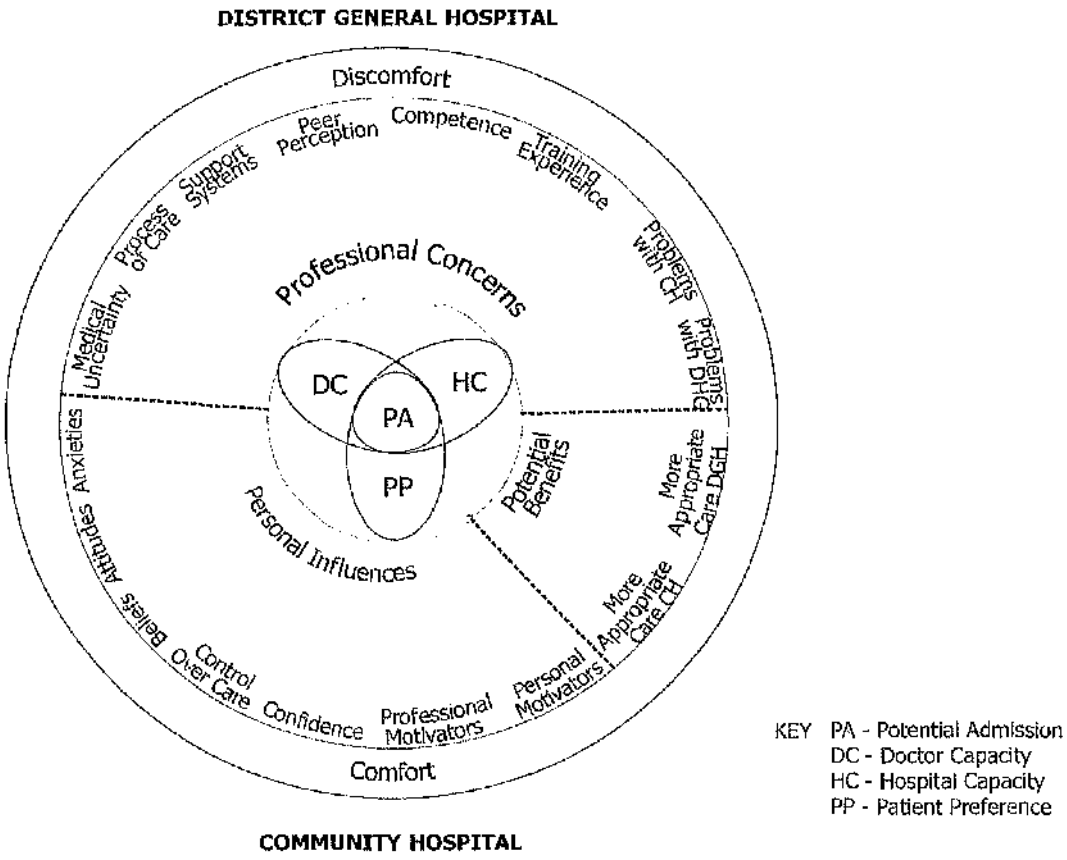
> *"I mean if you are perfectly honest and you are snowed under and you know there is a bed sometimes you just send her to Perth. I just think I cannot face another half hour or forty minutes admitting a patient". - Practitioner 4:32.*

With many of these patients there is the option to keep the patient at home provided the care and social support can be delivered in the home environment. In some cases it appeared to be easier for the general practitioner to admit.

"So in fact I suppose it's an ease if you like of dealing with the patient that they are actually admitted to the (community) hospital. There's at least two nurses to actually deal with the bathing and cleaning up, and nursing support just to see that she was not going to come to any harm if just left there". - Practitioner 10:22.

As the medical problems of the potential admission increase so do the complexities of the decision making. The general practitioner becomes aware of a variety of secondary influences. These have the potential to cause comfort or alternatively discomfort in the decision. How the doctor perceives and responds to such secondary influences is crucial to the admitting process. (Figure 6 2).

Figure 6.3 Admission Decision Making Model



How some of these factors interplayed can be seen in how this practitioner dealt with this admission of a patient for terminal care:

Interviewer	*"Can you describe the circumstances around a recent admission that you have made to the hospital?"*
Practitioner	*"He's a 77 year old chap with terminal cancer who's come in for terminal care".*
Interviewer	*"Can you tell me a little bit more about the circumstances of this patient?"*
Practitioner	*"He is a patient of mine who was diagnosed quite recently*

	and in Ninewells for Radiotherapy but really his condition has got to a stage now where no further treatment is appropriate".
Interviewer	*"Why the community hospital as opposed to home or opposed to anywhere else?"*
Practitioner	*"He's very weak, he needs two people to mobilise at all times and he requires repeated blood transfusions every few days and really home even with a good nursing care package at the moment wouldn't be able to cope-------- His bone marrow basically isn't working anymore".*
Interviewer	*"Are there any risks to the patient being in community hospital?"*
Practitioner	*"I'm quite comfortable with him being there------- he has got ascites and he may need a tap and I don't know if I would be happy about doing that because of the level of his platelets but I'll cross that bridge when I come to it------I think I would talk to the oncologists and get their advice".*
Interviewer	*"That's something you can do?"*
Practitioner	*"That's something we can do".*
Interviewer	*"Can you explain what makes you comfortable or what makes you uncomfortable?"*
Practitioner	*"-----if I don't feel they are going to get any better care in the district general hospital I feel comfortable admitting them. I think if they have got very complicated acute medical problems then I don't feel comfortable 'cause I feel*

> *I'm out of my depth -------- if I feel really uncomfortable I don't admit them". - Practitioner 19:2.*

Here the respondent was describing a case of complex terminal care where amongst other issues marrow suppression was causing severe anaemia requiring repeat transfusion. A further complication was associated thrombocytopenia causing potential bleeding problems. The general practitioner has weighed up the risks against their **competence** and their **training and experience** in order to have the **confidence** to deal with the potential problems. They recognise the potential "discomfort" in the situation and discloses clearly perceived limitations while indicating a willingness to consider the options if they cannot deal with the situation. **Support systems** and the appropriate **process of care** must be available in order to deliver the care needed. An important element of their "comfort" is the knowledge that she perceives no benefit in a DGH admission and choses the community hospital as a positive option. The context in terms of hospital capacity and patient preference were also important in order to achieve a successful admission.

Here the admitting doctor recognised "discomfort" as a result of the interplay of the above factors but was prepared to manage this as she perceived the benefits to her patient from a local admission were sufficient to outweigh such feelings.

6.14 Admission Patterns

Although not designed for this purpose the study highlighted some differences in admitting patterns between the 'high' and 'low' admitting groups. (Figures 1a, 1b).

The four highest "admitters" admitted more complex cases than their colleagues. Three had additional hospital training, and one had the MRCP (out of 3 in all respondents).

Gender, possession of MRCGP, part/full-time and the organisation of care within the practices appeared unrelated to admission rates or types.

At the " medical" end of the admission spectrum it was not possible to classify the admissions by type though it was clear that a number of "medical" admissions were directly comparable with DGH admissions. Such admissions appeared much less common than "*socio-medical*" admissions.

6.15 Disconfirming Cases

After all texts were coded, a model was constructed whilst reviewing the 27 tapes ensuring compatibility with each case while at the same time seeking for disconfirming examples.

The complete model depicts how general practitioners decide who should be admitted to the local community hospital under their own care. It can be applied across the whole spectrum of admissions reported in the study and is able to describe the different decision making processes operating depending on the combination of social and health issues involved. It alludes to the personal feelings of "comfort" and "discomfort" around the decision making process which are increasingly important as the medical complexities increase.

However, one case proved difficult to match with the model where the doctor's decision making appeared to be driven by the nurses in the hospital. There were very definite problems with the community hospital. His only experience of discomfort was in terms of his dealings with his local hospital nurses.

Practitioner	*"You need supporting nursing staff in these hospitals --- From time to time the nurses feel more uncomfortable about*

	the patients than the doctor does"
Interviewer	*"So why do think the nurses see it this way?"*
Practitioner	*"I don't understand it-------it amazes me some times at the attitude it really does, incredible the pressure that's put on you not to admit someone sometimes". - Practitioner 17:42on*

Here the model was probably not sustainable due to un-revealed personal issues between the doctor and the hospital staff. Other doctors admitting patients to the same hospital did not seem to have the same problems.

(Though not disconfirming, one respondent reported at a validation meeting that he had over emphasized the need to provide more nurses with better training ostensibly to highlight an area which needed resources if the general practitioners were to do more in the community hospital. He admitted that he did this in the hope that the researcher might be able to influence the distribution of any new resources towards his hospital!)

6.16 The Patient Journey

Admitting a patient to hospital can, in some respects, be considered in terms of a joint journey for both patient and doctor. If the wrong decision is made as to destination this may have consequences for the health of the patient, the long-term doctor patient relationship and the general practitioner's reputation. Like all journeys, it commences in varying circumstances and conditions. Its duration can be subject to delay and changes which may cause uncertainty and conflict. The final destination may be influenced by how the patient responded to events that may have occurred prior to the admission episode. Like most journeys it is undertaken for a purpose. In the case of hospital admission this

purpose can be defined as an attempt to achieve some form of health gain for the patient. This study employed techniques of qualitative enquiry to try and understand more about how and why such journeys were made given two possible destinations, the district general hospital or the community hospital.

6.17 Discussion

This study successfully gathered and analysed data from 27 in depth interviews with general practitioners purposefully selected to offer insight into community hospital admissions in one healthcare locality. The local profile of the interviewer assisted recruitment, but had the potential to influence respondents. This concern was raised at feedback meetings but the researcher and mentor were assured that respondents did not consider this to have been an issue. The advantage of access to respondents, additional insights and informality that the researcher's familiarity provided outweighed any effect on data collection. Perhaps, more importantly, the researcher and mentor were general practitioners, which may have led to a narrow or medically focused analysis being presented. This is for the reader to judge in the light of the research question.

The transferability of the findings is limited by the single rural Scottish setting studied but no comparable qualitative studies investigating this topic were found on literature review. We would therefore suggest that the findings of this study offer the best available insight into this process in the UK as a whole.

Understanding how general practitioners utilise community hospitals is crucial as their support and participation is required to develop intermediate care facilities to their full potential. Previous studies have endeavoured to understand referral to secondary care but

community hospital systems have received little attention. (Coulter, Noone, & Goldacre 1989). (Newton, Hayes, & Hutchinson.A. 1991). Dowie developed a model of referral decision making under three headings: professional attributes, personal style and knowledge of the healthcare system. This model was based on conflict resolution in which the referral decision emerges as a consequence of the coping pattern adapted to deal with uncertainties of a particular case. (Dowie 1983) Newton et al agreed that psychological factors are integral to decision making but argued that social and cultural variables also have a role. (Newton, Hayes, & Hutchinson.A. 1991). Wilkins and smith recognised that referral was a complex process which involved interaction of both social and psychological factors. (Wilkin & Smith 1987). The decision will also be influenced by the clinical biases that are known to exist in all doctors whether newly qualified or vastly experienced. (Tversky & Kahnemam 1972). In the community hospital setting, where practitioners may elect to retain or discharge clinical responsibility, we found both psychological and cognitive factors clearly involved.

The data supports the concept of "comfort" in the decision-making process as important for most practitioners, particularly as the medical challenge increased. Such a determinant is clearly similar to Dowie's model in which the satisfactory resolution of conflict is necessary for the referral decision to be made. The recognition of "comfort" and hence "discomfort" in medical decision-making is not a new one. Bradley studied critical incidents and identified the phenomenon of discomfort in general practice-prescribing decisions. (Bradley 1992). He found complex decision-making and the occurrence of discomfort almost universal. In contrast, our respondents described everyday situations when they often saw the decision as simple and comfortable. The complex decisions were case specific and dependent on the nature of the care required and the perceived balance of

potential benefits to the patient, professional concerns and personal influences. It is interesting that the end result of this balancing act is reflected as a feeling, implying that the psychological component of this process may be more pervasive than we like to acknowledge. The picture is of a multi-factorial, idiosyncratic, admission process that allows the more committed practitioners to offer extended services whilst others operate comfortably within their own competencies.

The processes described are compatible with current thinking on complex systems. (Burton 2001; Cilliers 1998). Most ideas behind modern medicine and organizational management are grounded in the paradigm of linear external control ie. do X to the system and Y will happen (or at least Y will happen more than if you didn't do X) You can consider a potential admission to hospital in this way. Present X, a complex of medical and social problems to the doctor and Y will happen i.e. admission to hospital. Extrapolation to the complex system described in this thesis and there are multiple outcomes ie Y, when no change occurs, W, when the patient goes into the DGH and Z when the patient goes into the community hospital.

The complexities of the situation makes linear simplicity seem highly improbable, if not absurd in real life. Complex system thinking suggests firstly that order and adaptation arise within a system In keeping with complex systems thinking these adaptations depend more on the interactions of parts of the system i.e. doctor with patient, patient with hospital, hospital staff with doctor, than on the individual parts themselves. These interactions are non linear, such that small causes i.e. patient did not like the way she/he was handled in a previous admission, might have large effects ie. patient refuses to be admitted to the same hospital on a future occasion. It is clear that simply identifying the components of the

system does not allow you to claim that you fully understand how it operates. The overall processes involved are likely to be extremely complex

Such interactions and complexities highlight the problem of trying to understand the process only in terms of its component parts. It emphasizes the need for further research.

Ramaiah suggested that for community hospitals to have an increased role, they require to be more effectively managed. (Ramaiah 1994). However, this may conflict with the existing system, which is governed by the practitioners themselves. Reducing their control could induce "discomfort" and dramatically reduce the enthusiasm and professional satisfaction that currently maintains this work. Those developing intermediate care services around community hospitals need to take account of the factors that influence practitioners perceived comfort with their role. If the types of patients managed in community hospitals are to change then specific training, and ongoing support recognising these factors, is required.

6.18 Strengths and Weaknesses

6.18.1 Trustworthiness

Continual efforts were made in this study to encourage honest responses, whose meaning were clarified through discussion and verified where possible. The role of the researcher was extensively reviewed and every effort made to minimize the effects of the researcher on the research findings. The arguments for and against the use of a different researcher have been clearly stated. However, such an individual would not have been able to gain the access, nor to achieve the insights, that the researcher's position provided. The use of an

experienced qualitative researcher as mentor and the rigor with which the methodology was applied ensured that the analysis was as genuinely grounded in the data as possible.

There were concerns that some respondents might be worried about exposing their perceived ignorance or report atypical cases to play up or play down their clinical activities. Further concern was also expressed at the beginning that some respondents might feel that there was a "political" dimension to the study. The rigor with which the methodology was applied and the response from the respondent validation meetings convinced the researchers that such concerns were unfounded. The framework to ensure this rigor can be summarized under the following heading;

6.18.2 Credibility

- Data collection
    - A wide selection of respondents from the group were interviewed to ensure the widest possible depth and diversity of view.
    - Careful data collection employed with attention to interview technique during early analysis using an experienced mentor
    - The use and maintenance of a reflexive journal throughout the study.
- Analysis
    - Described in detail.
    - Fully inclusive of all cases.
    - Triangulation of analysis with one experienced researcher.

6.18.3 Dependability

- Detailed data collection and analysis.
    - Interviews prolonged at respondents choice of site with minimal pressure.

- Researcher underwent in depth training for the study.
- Influence of researcher carefully and repeatedly considered throughout and insulated against.
- A extended sabbatical taken to allow for data collection and analysis without pressure of time.
- An experienced mentor was involved throughout for regular mentoring.
- Field notes made after each interview and incorporated into the analysis where appropriate.

6.18.4 Confirmability

- Formal search for disconfirming data by reviewing all tapes.
- Data presented in detail to support analysis.
- Role and experience of researcher discussed in detail.
- Follow up meeting with respondents to check theory and preliminary conclusions.

6.18.5 Transferability

- Limited by the rural Scottish setting in terms of the type of community hospitals available and the specific contextual factors operating including a single small district general hospital with less than one hundred general medical and geriatric beds.
- Supported by the range of admitting doctors included and the widespread distribution of small community hospitals in rural areas across the United Kingdom.

The study successfully gathered and analysed data from 27 in depth interviews. It achieved an open and wide ranging discussion covering a wide range of topics surrounding the admission of patients to community hospitals in Perth and Kinross. No comparable qualitative studies investigating general practitioner admitting behaviour to community hospitals were found on literature review.

6.18.6 The Context of the Study

Hospital admission is affected not just by the complex interplay between the characteristics of patients and referrers but by the presence or absence of alternatives which, may or may not be available to the admitting doctor. (Coast, Peters, & Inglis 1995). In all qualitative studies it is important to be aware of these factors as they may be contributing to the contextual framework against which the study is taking place. Within each town and district such alternatives differ according to local circumstance. The presence of a community hospital is only one such alternative as is the provision of inpatient and domiciliary geriatric services.

In Perth and Kinross there has been an understaffing of the geriatric service for many years with only one full time consultant geriatrician and a lack of clear direction in terms of a care of an elderly strategy (Scottish Health Advisory Service 1998). These deficiencies, though not quantifiable in terms of impact on general practitioner behaviour, have affected care delivery to the elderly population of Perth and Kinross and by inference, therefore, must have affected how the general practitioners in this study cared for their elderly patients.

6.19 Questions Posed by the Study

One of the questions raised by the findings was "what is an appropriate community hospital admission?" For the majority of respondents, it was a patient from the sociomedical end of the admission spectrum. Here general practitioners could remain comfortable and refer patients to the district general hospital if they caused any discomfort. How appropriate was this behaviour? Should general practitioners be able to stay "comfortable" in this way if they have the local resources to manage the patient? It was

significant that some respondents were noting that with more "step down" admissions this was beginning, in some cases, to cause discomfort, as the general practitioners could not always control such admissions. The question of "discomfort" in the decision-making process is one that should receive attention when the education and training of doctors is being considered.

It would appear from the findings that a relatively small number of general practitioners admitted the majority of "medical" admissions. It was possible to identify a wide variety of professional motivators and personal influences, which appeared to encourage general practitioners to admit to the community hospital. Why only a small number of general practitioners were prepared to admit patients from the "medical" end of the admissions spectrum was not clear. It is likely that personal doctor characteristics were crucially important.

Social rather than medical vulnerability may be of equal importance in considering whether a move to a community hospital is the correct option for the patient. Without wider knowledge of the social alternatives, it is not possible to argue one way or another whether the community hospital is acting as an appropriate social alternative for the socio-medical admissions identified. It would appear likely that this was the case in at least some of these patients. This would appear to be an area for further research and is addressed in part 3 of this thesis.

Virtually all the respondents expressed positive opinions about having a community hospital. However, there were varying opinions as to how they should be developed in the future. In general the general practitioners were happy with the current situation and did

not appear to favor any major changes in their community hospital work. It was important to the majority that they retain the current model with the responsibility of care remaining with the individual practitioner. A number of general practitioners expressed strong opinions about community hospitals being a more appropriate care alternative for many elderly patients as well as being an important component of their everyday practice. If this is the case the question then arises: why are community hospitals not more widely available and general practitioners not more willing to be involved in their operation? Questions of beliefs, attitudes and personal motivation will be relevant. One possible way of obtaining answers to these questions would be to repeat the study with a group of practitioners without access to community hospitals. At the same time it would be useful to canvass the opinions of a wide range of opinions at board and national level.

Figure 6.1a

Perth & Kinross Community Hospitals

Admitting General Practitioners (1)

Practice	GP	WTE /PT	Interviewed	Average Nos Referred/Year (1997-2000)	Practice Distance from the Community Hospital	Qualifications MRCGP	MRCP
	A1	WTE	YES	HIGH	<1ML	NO	NO
	B1	WTE	YES	MED		NO	NO
	C1	WTE	YES	MED		NO	YES
	D1	PT	NO	LOW		NO	NO
	1A2	WTE	YES	MED	<1ML	YES	NO
	1B2	WTE	YES	MED		YES	NO
1	1C2	WTE	YES	MED		YES	YES
	1D2	WTE	YES	LOW		YES	NO
	1E2	WTE	YES	HIGH		NO	NO
	1F2	PT	NO			NO	NO
	2A2	WTE	NO	MED	<1ML	NO	NO
2	2B2	PT	YES	MED		NO	NO
	3A2	WTE	YES	MED	5ML	YES	NO
3	3B2	WTE	NO	LOW		YES	NO
	4A2	WTE	YES	LOW	5ML	NO	NO
4	4B2	WTE	NO	LOW		NO	NO
	4C2	WTE	YES	LOW		NO	NO

High Admittors
>50/YR
Medium Admittors
>20<50/YR

Low Admittors
<20/YR

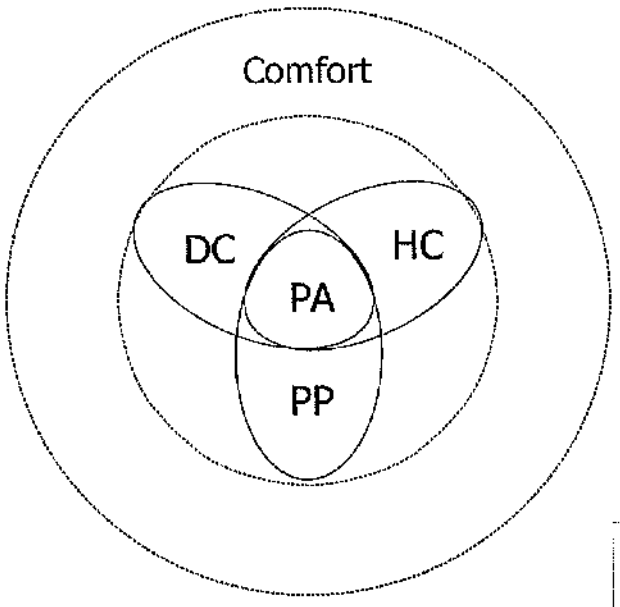
Figure 6.1b

Perth & Kinross Community Hospitals
Admitting General Practitioners (2)

Hospital	Practice	GP	WTE/ PT	Interviewed	Average Nos Referred/Year (1997-2000)	Practice Distance from the Community Hospital	Qualifications MRCGP	MRCP
3	1	1A3	WTE	YES	HIGH	< 1ML	YES	YES
		1B3	WTE	YES	MED		YES	NO
		1C3	PT	YES	MED		YES	NO
	2	2A3	WTE	NO	LOW	< 1ML	NO	NO
		2B3	WTE	YES	MED		YES	NO
		2C3	PT	YES	LOW		YES	NO
		2D3	PT	NO	LOW		NO	NO
		2 E3	PT	YES	MED		YES	NO
		2F3	WTE	YES	HIGH		YES	NO
		2G3	WTE	NO	LOW		NO	NO
	3	3A3	WTE	NO	MED	7 ML	YES	NO
		3B3	WTE	YES	LOW		YES	NO
		3C3	WTE	NO	LOW		NO	NO
4		A4	WTE	YES	HIGH	< 1ML	YES	NO
		B4	WTE	NO	MED		NO	NO
		C4	WTE	NO	MED		NO	NO
		D4	WTE	YES	HIGH		YES	NO
		E4	WTE	YES	MED		YES	NO
5		A5	WTE	NO	HIGH	< 1ML	YES	YES
		B5	WTE	YES	LOW		NO	NO
		C5	WTE	YES	MED		YES	NO
		D5	PT	NO	MED		YES	NO
		E5	PT	YES	MED		YES	NO
		F5	PT	NO	LOW		YES	YES
		G4	PT	NO	LOW		YES	NO
		H5	PT	YES	MED		YES	NO

Figure 6.2

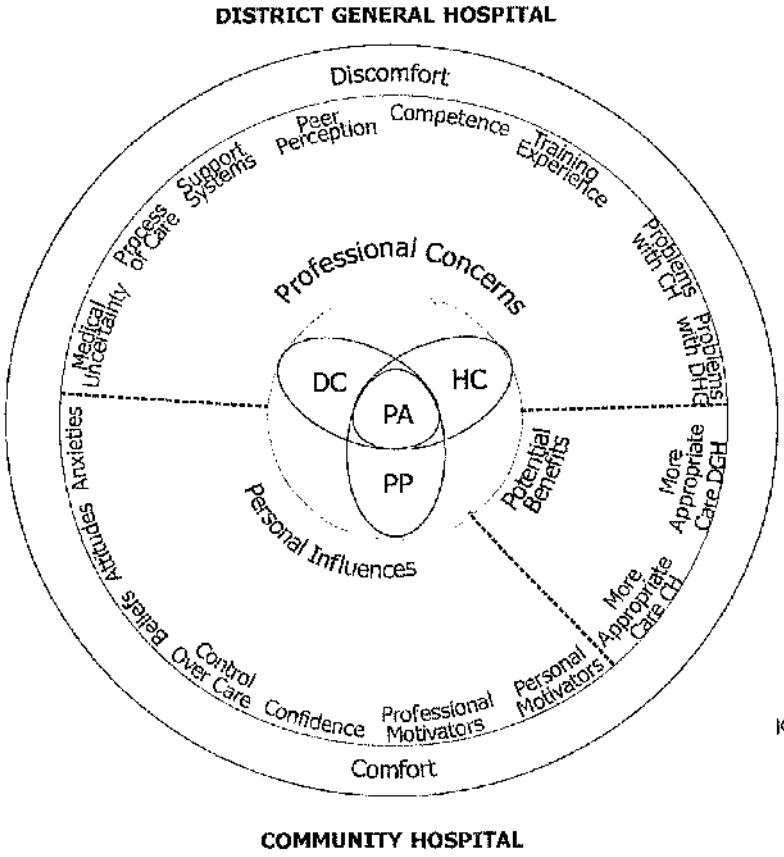
The Contextual Framework



KEY PA - Potential Admission
DC - Doctor Capacity
HC - Hospital Capacity
PP - Patient Preference

Figure 6.3

Admission Decision Making Model



KEY PA - Potential Admission
DC - Doctor Capacity
HC - Hospital Capacity
PP - Patient Preference

Chapter 7

7 A Prospective Study of Community Hospital Inpatients in Perth & Kinross Community Hospitals

Study 3

This chapter describes a twelve month prospective inpatient study in all five Perth & Kinross community hospitals. The purpose of this study was to try and understand more about the types of patients admitted and their backgrounds as well as assessing the outcome of their care. The study also analysed factors which might be significant in predicting whether a patient would experience delayed discharge from hospital.

7.1 Background

It has been stated that further research on the reasons why patients were admitted to community hospitals, and with what result, was required. (Jarvie 1990; Ritchie 1996). It was therefore decided to carry out a twelve month prospective study of all patients admitted and discharged from the five Perth & Kinross community hospitals with the aim of obtaining more detailed information on background patient characteristics, their treatment and the outcome of the care they received.

7.1.1 Preliminary Considerations

Rather than develop a completely new data collection tool it was important to consider what was already available, including the relevance, validity and reliability of existing instruments.

A questionnaire must be both reliable and valid. Reliability refers to an instrument's ability to achieve the same results on different occasions with the same individual respondents. In measuring variables relative to a community hospital inpatient some variables such as date of birth or place of origin would be relatively easy to assess in terms of reliability. Where measures of dependency and illness related factors were being assessed there would be greater difficulties. Inevitably any instrument would have to be a compromise but would hopefully achieve " internal consistency". (Streiner & Norman 1995). (This is the extent to which an individual performs similarly on related items within a measure during a single administration).

Validity refers to the ability of an instrument to measure what is intended. There are several components to validity each of which need to be considered and established separately. (Landy 1986; Streiner & Norman 1995).

1. Content validity: The extent to which the measure covers adequately the domain under consideration while not measuring and discriminating on the basis of other dimensions.
2. Criterion validity: The extent to which responses to the measure correlate with other established measures of the same concept, ideally a gold standard. This allows development of brief and convenient or less invasive means of assessment. It requires the instrument to be compared with the existing known measures and is similar to the calibration of a laboratory instrument. In the case of community hospital inpatient studies there are no gold standards, criterion validity can only be estimated.
3. Construct validity. The extent to which a measure is related to criteria derived from an established theory of constructs. In the case, for example of "severity of illness" this requires that a measure should be consistent with the hypothesis that severity is multi dimensional but will, in a substantial way, be related to age, diagnosis, dependency and

drug treatment. Similar constructs can be proposed for other observed phenomena such as "delayed discharge". Such constructs can be created as part of the development and piloting process.

7.1.2 Information Recording

It has been argued that the type of information recorded on the SMR01 return does not provide a true reflection of the nature of the inpatient activity being undertaken. (Ritchie 1996).

For example it is recognised that formulating reasons for admission to hospital in purely medical terms may be inappropriate. Such formulation does not recognise social factors such as isolation and insufficient carer support nor does it take into consideration the influences on the general practitioner which are often crucial in the referral decision process. (Coulter, Noone, & Goldacre 1989). Ritchie proposed that the existing SMRO1 might be usefully modified to consider the purpose of each admission i.e. acute medical, assessment, observation etc. (Ritchie 1996).

The quality of SMRO1 coding in community hospitals was last reviewed in 1996. (Knight 1996b). This limited review, based on a sample of records covering 49 community hospitals, revealed little variation overall in coding quality between community hospitals and district general and teaching hospitals. The main diagnosis, for example, had an error rate of 12% in community hospitals compared with 13% in larger hospitals. (Knight 1996). However, no information was provided on how this 'error rate' was determined, nor was any consideration given to non-medical reasons for admission.

Oddie analysed community hospital admissions by functional categories such as therapy, nursing and supervision requirements. (Oddie, Haslett, & Vine 1971). Kernick and Davies studied reasons for admission in terms of acute illness, family relief, assessment and terminal care highlighting the limitations of simply "medical labelling" community hospital admissions. (Kernick & Davies 1976) Tomlinson et al in the Leicestershire study involving 564 admissions found social factors contributed to approximately half of all admissions. These included family or carer pressure on the general practitioner and a breakdown of social support.

7.13 The Community Hospital Information Project

In 1995 a group of health professionals with an interest in community hospitals were successful in gaining support from the Scottish Executive for a study into the whole area of community hospital information recording (personal communication). A working group with representation from the Information & Statistics Division of the Common services agency of the Scottish Executive, Edinburgh (ISD) was formed. From a random sample of Scottish community hospitals a detailed survey was carried out which identified what users thought should be in a community hospital dataset. Following an extensive process of hospital visitation, and interviewing a wide range of users, supported by 71 returned questionnaires a dataset was agreed and a data collection instrument drawn up. This was piloted for three months in five Scottish community hospitals in 1999. Results have not as yet been published. (personal communication).

The instrument used in this part of the thesis was based on the data collection tool devised by the community hospital information project (CHIP). The tool was felt by those involved in this study to be extremely comprehensive but cumbersome and difficult to use.

Originally it had been hoped to collect the data in the CHIP project electronically. However it was clear that an electronic version of the instrument would not be forthcoming hence the need to carefully refine and modify the instrument into a practical tool that could be used manually in all hospitals for the year of the study.

7.2 Method

After a period of formal instruction and training in the use of the modified CHIP tool, information was collected by the senior charge nurse in each hospital. The same five individuals carried out the assessments and collected the information for the full duration of the study. The average length of service of the five nurses involved was 8.5 years (range 5-14 years). The resultant knowledge of many of the patients was regarded as an important to the process of collecting valid and accurate information. The dependency of each patient on admission and discharge was assessed using the modified Scottish Health Resource Utilisation Groups (SHRUG) criteria (ISD & The NHS in Scotland 1999).

7.2.2 The SHRUGS Method

SHRUGs is based upon a measurement of dependency and need for special care. For the SHRUGs method currently applied in hospitals, care needs are described in terms of needs for special care, clinically complex treatments and behavioural difficulties. Dependency is described in terms of feeding, use of the lavatory and transferring position. (Appendix. 9.11). Data was obtained both on admission and discharge by the charge nurses in each hospital. These data were entered directly into the database.

The SHRUGs measure makes use of hierarchical methods of grouping data to generate the five resource utilisation categories. Each patient on admission and discharge was placed in a resource utilisation group according to their dependency and needs characteristics.

7.2.3 The Data Collecting Instrument

The instrument was initially piloted in the two largest hospitals (Hospitals 2, 3) for a period of two months. During this period, repeated meetings were held with the researcher, the charge nurses identified to collect the data and a statistician from ISD who had worked on the original CHIP project. Through an iterative process the original tool was refined and simplified several times in order to allow a more user friendly application while still capturing the required information. (Appendix 10.8, 10.9).

7.2.4 Validity and Reliability

Once there was agreement on the content and operation of the tool used the content validity was tested by identifying a general practitioner in each of the five hospitals who was willing, after a period of instruction, to test the instrument. Each practitioner was asked to code the same group of 10 randomly selected inpatient notes collected from the five hospitals. These were also coded by the charge nurses in each hospital and kappa correlation coefficients calculated for key variables. Kappa correlations were calculated according to multiple observers in multiple categories. (Armitage & Colton 1998). The following kappa correlations were calculated: "Transfer/admission from" kappa=0.83, "Type of care provided" kappa=0.78, "Type of admission" kappa=0.6, "Main diagnosis" kappa=0.53, "Reason for admission" kappa=0.28.

An estimate of internal consistency was also made from data obtained. Overall the level of consistency achieved for ten of the most important variables was 69.1%. (Appendix 10.12).

7.2.5 Data Collection

Data was collected on all inpatients admitted and discharged from the five Perth and Kinross community hospitals during the twelve months from 1st November 2000 to the 31st October 2001. The raw data was collated and entered into a Microsoft Excel spreadsheets by a single data entryist for the duration of the study. Subsequently data was assigned to appropriate variables for analysis by SPSS Version 9.

7.2.6 Definitions

Individual drug groups were classified according to the British National Formulary (BNF) ie, hypnotics/anxitiolytics, antipsychotics and antidepressants. (Table 7.9).

A care package was defined as the patient receiving one or more of a) social services input, b) home help (either private or social work organised) c) meals on wheels. A carer was defined for the purpose of the study as a spouse, partner or friend who provided daily home care support for the patient beyond that of simple housekeeping duties.

Patients who were admitted from secondary care were identified as those referred by a consultant. There was no direct referral from community to community hospital by consultant.

Delayed discharge was arbitrarily defined, according to current practice within Tayside hospitals, as those patients who were in hospital for a period longer than 30 days.

7.2.8 Statistical Methods

Multiple logistic regression was used to model the factors contributing to delayed discharge. (Hosmer 1989). The covariates included age, sex, consultant referral, the admission SHRUGS dependency, and the presence of a home carer and a care package. Other covariates assessed were the taking of any drug from various drug groups including hypnotics/anxitiolytics, antipsychotics and antidepressants (Table 7.15).

Coveriates, which might affect discharge, were each considered in a univariate analysis. Those, which were significantly associated with delayed discharge, were included in a multiple logistic regression model. Not all variables included in this model remained significant because of the relationships between the explanatory variables. Backward stepwise regression was used to arrive at a final model. The results of the modelling are shown in Table 7.16.

7.3 Results

A total of 973 patients were admitted and discharged during the study.

The mean age admitted was 77.1 years (SD 14.59) (Table 7.8) 62.3% were female and 37.6% were male. The mean duration of stay was 14.5 days (SD 19.15) 73.5% were referred by the general practitioner, 26.6% were consultant referred. It was estimated that 67.6% of admissions would have to have taken place if no community hospital bed had been available 52.9% of admissions were classified as "medical" while 43.9% were classified "medical/social" and 3.5% were "social" admissions. (Table 7.8). The overall death rate was 8.6%. (Table 7.9).

7.3.1 Patient Characteristics prior to Admission

7.3.2 Source of Admission

58.5% of patients were admitted from home. Of these just over half, 53.6% stayed alone and of these 46.5% had some form of care package. Of the 41.5% who stayed with a carer less than a quarter, 24.1% had a care package. (Table 7.1a) 28.3% were transferred from an NHS acute hospital 6.2% were admitted from a nursing or a residential home while 6.2% were admitted from holiday or other temporary accommodation. (Table 7.1b).

7.3.3 Home Care Support

27.9% of patients were identified as having an active carer at home prior to admission. 55.9% were receiving input from their general practitioner and 33.1% were receiving input from a District Nurse. (Table 7.2a). Only 3.2% attended hospital day care while 3.7% attended social day care. 10.9% had a care manager while over a third, 34.9% had a home help. 9.5% were in receipt of meals on wheels. 4.9% of patients received input from specialist nurses. (Table.7.2b).

7.3.4 Type of Admission

Admissions were classified according to standard SMR01 criteria which were expanded to include categories identified in the qualitative study (see Chapter 6). Overall 34% of admissions were classified as "emergency" (Range 18.9%-45.9%) 4.6% of admissions were planned (Range 4.6%-17.0%) while 28.2% were transferred or "stepped down" from secondary care (Range 24.8%-35.7%) A further 11.5% were classified as "assessment", 5.6% as "can't cope" and 3.1% as "anticipatory".(Table 7.3).

7.3.5 Diagnoses as Classified by ICD 10

The most common diagnoses recorded were ICD R00-R99; "Symptoms and signs not classified elsewhere" (14.8%) 11.4% were classified as "Diseases of the circulatory system" (ICD 100-199) and 9.4% as "Diseases of the respiratory system" (J00-J99). A smaller number of a wide range of conditions were also classified under broad ICD headings. (Table 7.5a, 7.5b).

7.3.6 Dependency on Admission and Discharge

28.7% of patients were assessed as being of low dependency with no behavioural difficulties on admission. This figure had increased to 68% of all patients on discharge. Only a small number of patients were assessed as having low dependency with behavioural difficulties on admission (2.2%) and on discharge (3.4%) More patients were assessed as having moderate dependency with or without the need for special care or for complex treatments, 36.7% and 26.3%of admissions respectively. On discharge these figures had fallen to 13.3% and 10.45%. Only 6.1% of patients with high dependency, and a need for complex treatments, were admitted. There was a small reduction in this figure on discharge to 4.9%. (Figure 7.4).

7.3.7 Community Hospital Interventions

X-rays and ECGs were carried out in 10.1% and 19.0% of patients respectively. (Table 7.6). 6.7% of all inpatients were transfused, 4.8% received intravenous fluid replacement and 4.4% S/C fluids. Chest problems were common with 13.1% requiring oxygen and 9.9% requiring drugs by nebuliser. A wide variety of other interventions were

recorded including administration of drugs by syringe driver, naso-gastric suction, oxygen saturation monitoring and barrier nursing. (Table 7.6).

7.3.8 Discharge Characteristics

Only 11.9% were discharged alone to their own home while 24.9% were discharged home with a care package. (Table 7.12). 30.4% were discharged home with an identified carer. Just over a third of patients (34.7%) were in receipt of a social work care package, 6.0% of patients were discharged to a residential home while 2.3% went to nursing home care. The transfer rate to other acute NHS hospitals was 12.9%. (Figure 7.3).

7.3.9 Discharge Delay

115 patients had discharge delayed beyond 30 days. Several reasons were identified as contributing to this delay including: "awaiting residential funding" (20.5%), "awaiting new services to the discharge home" (17.6%), "family/relative problems" (17.4%) and "discharge procedures completed awaiting GP approval" (11.8%) (Table 7.12).

To consider the relation between delayed discharge (length of stay > than 30 days) and patient admission characteristics, a logistic regression model was used to assess the odds of delayed discharge depending on the presence of multiple patient specific characteristics. The age and sex of the patient, whether the referring doctor was a general practitioner or consultant, the patient dependency on admission, the presence of a social care package and the number and type of drugs on admission were assessed for their confounding effects.

Delayed discharge was significantly associated with being referred by a consultant (adjusted odds ratio 1.85 (95% confidence intervals 1.23 to 2.78; p=0.004)) The presence

on admission of a care package was also significant(adjusted odds ratio 1.57 (95% confidence interval 1.06 to 2.33; p=0.028)) Delayed discharge was significantly associated with the admission first level SHRUGS dependency scores (adjusted odds ratio 2.88 (95% confidence interval 1.50 to 5.56)) The presence of a care package on admission (adjusted odds ratio 1.57 (95% confidence interval 1.06 to 2.33 p=0.03)) was also significant. (Table 7.16).

The effects of the patient taking any one of three different groups of drugs were examined. There was no association with the patient taking anti psychotics or antidepressants. However there was a significant association between delayed discharge and the patient taking a hypnotic/anxiolytic. (Adjusted odds ratio 1.71 (95% confidence interval 1.12 to 2.62 p=0.016).

When these variables were grouped together age on admission (Adjusted odds ratio 1.33 (95% confidence interval 1.10 to 1.61)), consultant referral (Adjusted odds ratio 1.71 (95% confidence interval 1.13 to 2.61)), SHRUGS score on admission (Adjusted odds ratio 3.38 (95% confidence interval 1.31 to 6.30)) and the prescription of anxiolytics (Adjusted odds ratio 1.74 (95% confidence intervals 1.11 to 2.71)) all retained significance in the final model. (Table 7.14).

7.4 Discussion

This study has demonstrated that it is possible to do prospective research in community hospitals. A validated instrument was refined and used successfully in five community hospitals for a period of one year. The kappa correlations were generally high supporting the validity of the tool. The one low kappa was obtained for "reason for admission". This tends to support the proposition that it is very difficult for even experienced general

practitioners to agree on a single reason why a patient should be admitted to a community hospital. (Aaraas, Fylkesnes.K., & Forde.O.H. 1998; McKinlay 1991; Tomlinson, Raymond, Field, & Britten 1995). The causes of admission are often multi factorial but are not necessarily less valid because of this. The admitting doctor may have difficulty in defining a single reason for admission but they recognise that the patient's problems can only be addressed by a period of inpatient care.

The information collected has provided significant new insights into the type of patients and the outcomes of care achieved by these units in Scotland. The largest group of patients admitted were the dependent elderly. Most of these patients were already receiving medical input and nearly a third had an identified carer at home. There was a wide range of social supports being delivered prior to admission.

Previous authors have raised the question as to whether general practitioners are using community hospital beds appropriately. (Ramaiah 1994). The hypothesis being that admission occurs because there are no other alternatives. The evidence from this study does not support this viewpoint. When asked directly it was estimated that over two thirds of admissions would have occurred even if the community hospital was not available. While it is recognised that many classifications are subjective it was estimated that over half of the admissions were classified as being for medical reasons only. This is in keeping with other studies. (Tomlinson, Raymond, Field, & Britten 1995).

The reason for admission to a community hospital has always been an area of some controversy. (Jarvie 1990; Ramaiah 1994; Ritchie 1996). Over 70% of patients were admitted by their own doctor or by a locum. Using SMR01 recording in the retrospective

part of this study nearly three-quarters of admissions were classified as "medical emergencies". In this prospective part of the study only just over a third were classified as "medical emergencies". This was considered to be a much more realistic figure being reflected in the generally low level of active interventions being delivered. These findings were supported by the work carried out in the qualitative study which showed that only a small number of practitioners were prepared to deliver care to relatively more complex medical problems.

One of the main reasons for this apparent fall in the number of medical emergencies was not a change in the types of patients being admitted but the change in the data collection choices available to staff. This increased choice in the types of admissions not previously classified such as "anticipatory", "assessment" and "not able to cope" was clearly important. Nearly a fifth of all admissions were classified under these new headings. It could be argued that for elderly patients these reasons for admission could be just as valid as being admitted due to pneumonia or hypertension.

This study has clearly demonstrated that simply to classify patients medically is not sufficient. It confirms that current SMR01 recording does not reflect the reality of all that is occurring with community hospital admissions. It is probably significant that the commonest ICD 10 diagnosis was " symptoms and signs not classified elsewhere". These difficulties and complexities around defining why a patient was being admitted was confirmed by the lack of agreement on the reasons for admission amongst the general practitioners testing the validity of the instrument.

Although it might seem that medical emergencies would be more appropriately managed in a district general hospital only 15.6% were later transferred to an acute bed in a district general hospital. A further 8.6% of patients died. Over 75% of patients were managed successfully in the community hospitals and were discharged. Despite the relative lack of active interventions there was clear evidence, reflected in the significant reduction in their dependency scores between admission and discharge, that patient care was appropriate and effective.

The level of caring and social support received by patients in this study reflected the pressures the elderly have in being maintained in their own homes. It was of interest that only a small percentage of admissions came from nursing and residential homes. This may reflect the quality of the nursing and care staff available in Perthshire homes. The evidence suggests that for chronically and terminally ill patients cared for in their own homes, problems focus around the management of symptoms and long-term pressures on carers. (Dooghe 1992; Twigg & Atkin 1994). It was clear that such pressures are reflected in the nearly 6% of admissions classified as being due to either patient or relative not being able to cope at home.

Similarly admitting patients for assessment and anticipating major problems if they are left at home raises serious questions around the provision of home services and the assessment of need prior to admission. Though nearly a quarter had some form of care package only just over 10% had the services of a care manager. Services such as day centres and day hospitals seem to have been under-utilised. This may reflect problems of provision and access in a scattered rural area. Though it was estimated that over a half of the patients were having active general practitioner input and a third were having district nurse input

prior to admission less than 1% were seeing a health visitor. It is recognised that caring and targeting elderly people is an important component of health visitor training. Services such as community psychiatric nursing, speech and language and chiropody also appeared to be poorly utilised though it may be that they were regarded as less important and therefore poorly recorded..

It was not clear what accounted for this poor utilisation of services but lack of provision, lack of awareness, a perception of poor quality and poor coordination between health and social services might all have been factors. It is also recognised that sometimes patients and carers simply do not wish to receive services that are on offer.

Despite the deficiencies identified the majority of patients improved in the community hospital environment as demonstrated by their improved dependency between admission and discharge. It is likely that the therapeutic environment with nursing and active rehabilitation were the main factors in this improvement.

7.41 Delayed Discharge

The problem of delayed discharge is one that increasingly affects all hospitals.

Variations in hospital length of stays have been subject to detailed study for many years. Excess average length of stays may be due to a tendency for all patients staying longer or to a small number of patients having very long stays (Heasman & Carstairs 1971; Sudell et al. 1991). The retrospective study confirmed that this group of patients were a problem in the hospitals in the study. In this part of the study it was decided to eliminate the patients with the longest stays by examining the group of patients who were admitted for longer

than thirty days but who were discharge during the duration of the study. Common reasons identified included, not unexpectedly, problems in finding or funding a nursing home or residential home place. There were also problems with putting services into the patients home and in family and relatives being happy to have their relative back in the community.

Multiple logistic regression was used to model the individual patient factors contributing to delayed discharge. (Table 7.15). Consultant referral was strongly associated with delay though this association lost its significant when combined in the model. (Table 7.16). Patients referred by a consultant were being transferred from the acute sector when their problems could no longer benefit from acute hospital treatment. At the same time the community arrangements to meet their needs had not been put in place. There was little evidence that there was a major change in patient drug load between admission and discharge. However, there was a significant association between the prescription of hypnotics/anxiolytics and delayed discharge. This requires further investigation.

Patients with care packages already in place requiring admission were pre morbidly frailer and more dependent than patients who lived independently at home. If they were still in hospital after 30 days it was more likely their discharge would be prolonged by the frailty of their condition prior to admission. The importance of social care packages of support was highlighted. In those experiencing discharge delay there were problems in getting new services into the discharge home. This was also associated with family and relative problems. In those delayed longest one in five were awaiting for funding for long-term care.

The dependency of patients is obviously an important consideration in a patients long-term rehabilitation. It is of interest that even a low dependency score on admission increased the odds of delayed discharge.

Not all variables included in the model remained significant because of the relationships between the explanatory variables. The final model included age, consultant referral, the admission dependency score, the presence of a care package and the taking of hypnotics/anxiolytics on admission. (Table 7.16). Identifying these factors as highly significant in predicting the likelihood of delayed discharge raises significant questions that require further research.

Patients transferred or "stepped down" from acute care are significantly more likely to "block" beds and prevent them being used more actively. This requires to be considered when such units are criticised for low turnover and activity. Further debate is required on whether this is an appropriate use of these resources.

Questions can be raised about whether the care packages being provided are comprehensive enough to maintain patients at home. If they are not, are the assessment procedures adequate to cope with the need? It is also likely that there are a significant number of these patients simply too frail for a care package that will sustain independence. Admitting these patients to a community hospital could simply be acting as a bridge between home and long term care. If this is the case there might be opportunities to examine in more detail the geriatric assessment they are receiving in order to establish whether it is significantly rigorous to ensure that only the patients who require long-term care are admitted for such care.

7.5 Strengths and Weaknesses

7.5.1 Strengths

This study was successful in generating a comprehensive inpatient dataset from the five community hospitals in study. By extending the study over a period of one year, information on 973 episodes of inpatient admission and discharge were collected.

The data collecting instrument was developed out of the community hospital information project. The processes involved in producing the instrument ensured that criterion validity was high. The instrument was initially felt by the researchers to be cumbersome and difficult to use. It was refined and piloted by the study users. The scope of the data collected was widened by collecting information on drug usage. It was further modified by using data generated from the qualitative study on the different types of admission. The final tool used was validated using multiple independent observers.

Despite the complexity and length of the data collection period, there was a high rate of instrument completion. The dataset was therefore comprehensive with multidimensional measures of admission factors, severity of illness and discharge factors. This permitted a logistical regression model to be created looking at admission factors predicting delayed discharge.

If the final version of the instrument is to be used as a routine method of collecting community hospital information it will require to be accessible in an electronic form. Following the work done in this study the Management Executive of the Scottish Health Service are actively pursing with their soft ware suppliers how they might use the modified

instrument in devising an electronic form for use in all Scottish community hospitals (Personal Communication).

7.5.2 Weaknesses

Despite refinement and piloting the instrument was still cumbersome to use. Its lack if testing in different situations was acknowledged. Ideally the instrument would have been validated in other settings before being used in this study.

As in the retrospective study valid criticism can be made concerning the difficulties in standardising the observations made. In all such studies many of the observations are subjective. This was recognised throughout the study. After the initial period of training there were regular meetings between the charge nurses involved and the data entryist to ensure problem areas of coding were discussed and consensus agreement achieved on contentious observations. Missing data was recognised and acknowledged. It was probably not possible to conduct such a study without having a significant number of missing values.

7.5.3 Diagnostic Bias

In each of the hospitals the recording of observations was done by experienced charge nurses. Though long periods of service to their individual hospitals may have contributed to the quality of the data collecting previous knowledge of patients may have introduced a degree of diagnostic bias.

7.5.4 Measurement Bias

The main potential source of measurement bias was the degree of subjectivity around the measures used to determine inpatient dependency. The charge nurses were making the assessments after a relative short period of training. In other studies it has been argued that it requires trained therapists to administer the instrument correctly. However, previous knowledge of many of the patients assisted the charge nurses in making more accurate assessments of functional capacity and dependency.

The SHRUGS dependency scale was initially devised for geriatric long stay patients therefore it can be argued as to whether it was appropriate for use in this study. It was decided to use it on two grounds 1) A modified version had been incorporated into the original CHIP tool and 2) It had been validated and, of all the dependency tools examined, it was simplest to administer. (The internal consistency surrounding inter-rated variability using the SHRUGS methodology has been assessed and quantified at 58%. (ISD & The NHS in Scotland 1999). In this study the internal consistency of ten variables of the modified SHRUGS dependency rating was assessed at 69.1%. (Appendix 10.12).

Figure 7.1

Histogram Showing the Age Distribution of all Patients Admitted to Perth & Kinross Community Hospitals (n=972) October 2000-November 2001

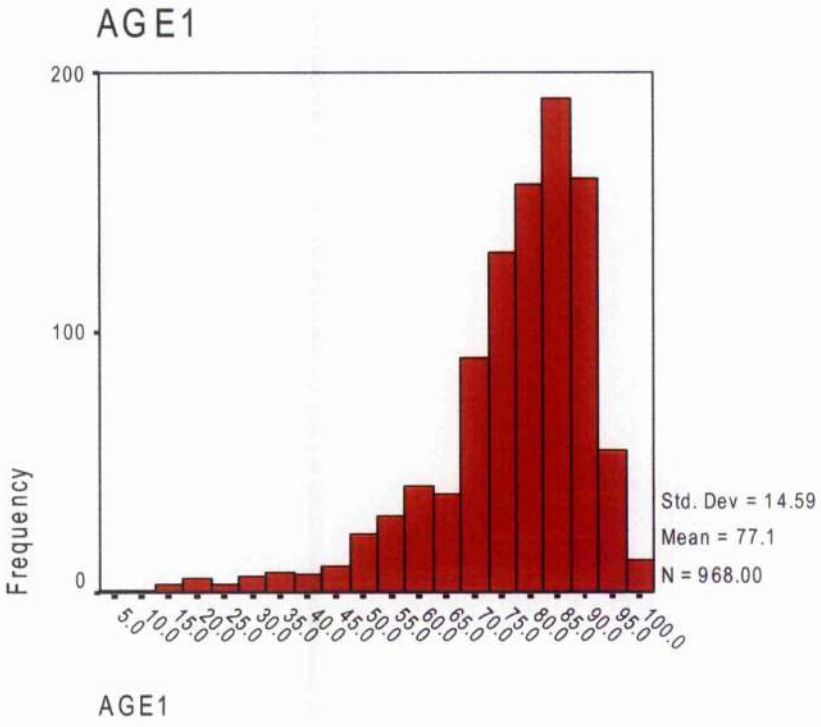


Figure 7.2

Histogram Showing Duration of Stay of all in Patients to Perth & Kinross Community Hospitals (n=966) October 2000-November 2001

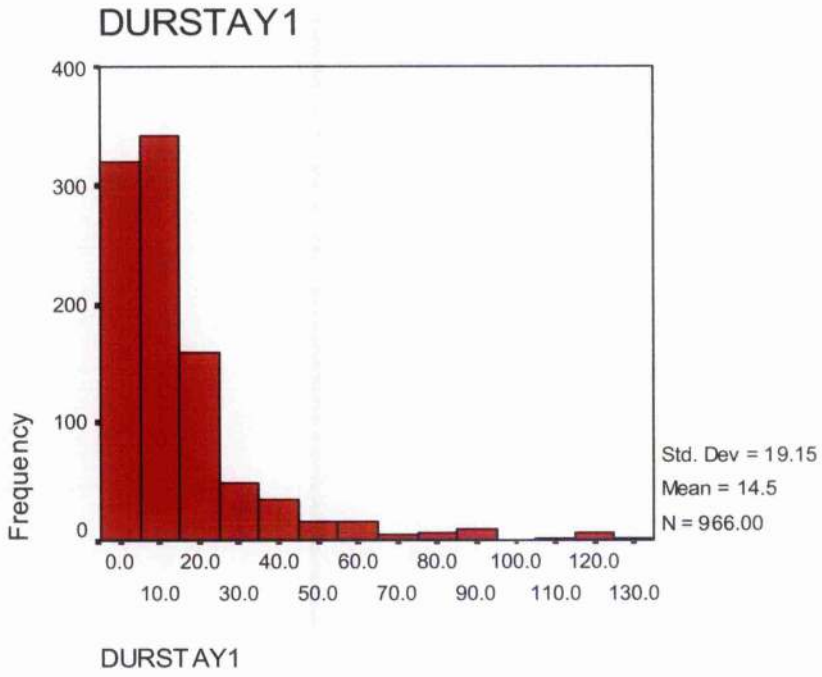


Table 7.1a

Patient Origin Perth & Kinross Community Hospitals (n=963)
October 2000-November 2001

Hospital	Admission/Transfer from					
	Home, Alone No Care Package	Home, Alone Care Package	Home, Carer No Care Package	Home, Carer Care Package	Transfer from NHS Acute Hospital	Transfer from Other Community Hospital
1	13 (12.0%)	8 (7.4%)	14 (13.0%)	9 (8.3%)	36 (33.3%)	3 (2.8%)
2	20 (11.5%)	36 (20.7%)	33 (18.9%)	17 (9.8%)	53 (30.5%)	0 (0%)
3	57 (17.3%)	58 (17.6%)	69 (25.6%)	16 (4.9%)	90 (27.4%)	2 (0.6%)
4	17 (11.5%)	30 (20.3%)	38 (25.6%)	4 (2.7%)	40 (27.0%)	0 (0%)
5	34 (16.7%)	30 (14.7%)	45 (22.0%)	17 (8.4%)	54 (26.5%)	0 (0%)
Total	**141 (14.6%)**	**162 (16.8%)**	**199 (20.6%)**	**63 (6.5%)**	**273 (28.3%)**	**5 (0.5%)**

Table 7.1b

Patient Origin Perth & Kinross Community Hospitals
October 2000-November 2001

Hospital	Admission/Transfer from					
	Transfer Within Same Hospital	Nursing Home	Residential Home	Holiday Accommodation	Other Temporary Accommodation	Public Place
1	0 (0%)	0(0%)	15 (13.9%)	7 (6.5%)	1 (0.9%)	1 (0.9%)
2	6 (3.4%)	1 (6%)	3 (1.7%)	1 (0.6%)	0(0%)	3 (1.7%)
3	1 (0.3%)	7 (2.1%)	17 (5.2%)	2 (0.6%)	0(0%)	6 (1.8%)
4	1 (0.7%)	0(0%)	1 (.7%)	11 (7.4%)	3 (2.0%)	3 (2.0%)
5	0 (0%)	1 (5%)	15 (7.4%)	1 (0.5%)	1 (0.5%)	2 (1.0%)
Total	**8 (0.8%)**	**9 (0.9%)**	**51 (5.3%)**	**22 (2.3%)**	**5 (0.5%)**	**15 (1.6%)**

Table 7.2a

Who Contributes to Home Care Prior to Admission to Perth & Kinross Community Hospitals October 2000-November 2001

Hospital	Carer	GP	Health Visitor	District Nurse	Physio	OT	CPN	Care Manager
1	53	41	2	40	7	5	4	7
2	99	102	5	91	4	1	4	11
3	82	224	1	77	8	0	6	53
4	19	54	1	46	0	1	3	3
5	19	123	0	68	5	1	13	32
Total	272(27.9%)	544(55.9%)	9(<1%)	322(33.1%)	24(2.5%)	8(<1%)	30(3.1%)	106(10.9%)

Figure 7.2b

Who Contributes to Patient Home Care Prior to Admission to Perth & Kinross Community Hospitals (n=710) October 2000-November 2001

Hospital	Home Help	Meals on Wheels	Specialist Nurse	S & L	Dietician	Chiropody	Social Day Care	Hospital Day Care
1	29	3	2	0	1	11	2	3
2	74	21	4	0	0	0	4	8
3	117	51	23	4	0	13	13	18
4	58	3	2	0	1	0	5	1
5	62	14	17	0	2	7	12	1
Total	340(34.9%)	92(9.5%)	48(4.9%)	4(<1%)	4(<4%)	31(3.2%)	36(3.7%)	31(3.2%)

Table 7.3

The Type of Admission to Perth & Kinross Community Hospitals (n=948) October 2000-November 2001

Hospital	Planned	Medical Emergency	Accident/ Injury	Stepdown	Assessment	Can't Cope	Anticipatary
1	5 (4.6%)	50 (45.9%)	4(3.7%)	39 (35.7%)	6 (5.5%)	5 (4.6%)	0 (0%)
2	23(14.9%)	31 (18.9%)	5 (8.3%)	53 (32.1%)	19 (17.4%)	20(12.1%)	14 (8.5%)
3	55(16.9%)	110 (33.9%)	15 (4.6%)	87 (26.9%)	28 (8.6%)	20 (6.2%)	9 (2.8%)
4	14(9.5%)	41 (27.7%)	11 (7.4%)	38 (25.7%)	35 (23.6%)	2 (1.3%)	6 (4.19%)
5	27(13.4%)	90 (44.5%)	8 (3.9%)	50 (24.7%)	21 (10.4%)	6(3.0%)	0 (0%)
Total	124(13.1%)	322 (33.9%)	43 (4.5%)	267 (28.2%)	109 (11.5%)	53 (5.6%)	29 (3.1%)

Table 7.4

The Type of Inpatient Care Provided in Perth & Kinross Community Hospitals (n-952) October 2000-November 2001

Hospital	Acute Medical	Assessment	Rehabilitation	Investigation	Palliative Care	Post Op Care	Radiotherapy Chemotherapy
1	39	28	33	6	5	15	0
2	19	41	38	14	16	8	1
3	80	68	71	14	40	5	0
4	41	53	22	1	8	18	0
5	51	62	28	6	15	6	2
Total	**230(24.2%)**	**252(26.4%)**	**192(20.1%)**	**41(4.3%)**	**84(8.8%)**	**52(5.5%)**	**3(<1%)**

Respite Care	Self Med Training same hosp	Terminal Care	Review of Medication	Other
5	0	3	2	2
9	0	2	0	7
2	0	6	11	9
0	0	4	0	7
4	3	5	12	5
20(2.1%)	**3(<1%)**	**20(2.1%)**	**25(2.6%)**	**30(3.2%)**

Table 7.5a

The Main ICD10 Diagnosis on Admission to Perth & Kinross Community Hospitals (n=968) October 2000-November 2001

Hospital	Hospital System	Symptoms/Signs Not Classified Elsewhere	Respiratory Disease	Neoplasms	Injury Poisoning
	(I00 - I099)	(R00 - R99)	(J00 - J99)	(C00 - D48)	(S00 - T98)
1	13 (11.8%)	14 (12.7%)	8 (7.3%)	6 (5.5%)	8 (7.3%)
2	18 (10.5%)	30 (17.4%)	22 (12.8%)	10 (5.8%)	6 (3.5%)
3	36 (10.9%)	35 (10.6%)	30 (9.1%)	13 (3.9%)	24 (7.3%)
4	16 (10.7%)	18 (12.1%)	13 (8.7%)	5 (3.4%)	15 (10.15%)
5	27 (13.1%)	46 (22.3%)	18 (8.7%)	13 (6.3%)	9 (4.4%)
Total	**110(11.4%)**	**143(14.8%)**	**91(9.4%)**	**47(4.9%)**	**62(6.4%)**

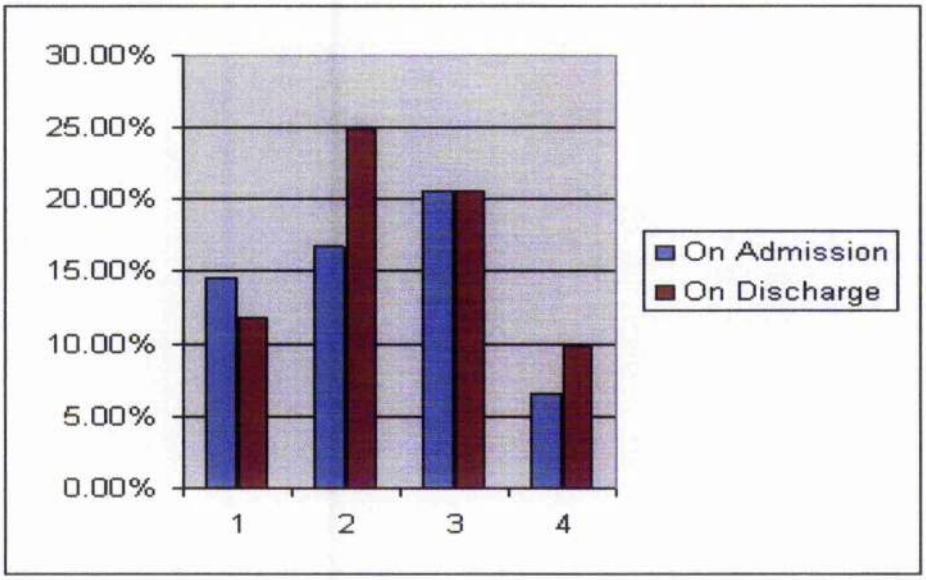
Table 7.5b

The Main ICD10 Diagnosis on Admission to Perth & Kinross Community Hospitals October 2000-November 2001

Hospital	Muskoskeletal	Mental & Behavioural	Digestive Disease	Disorders of the skin	Genito-Urinary
	(M00 - M99)	(F00 - F99)	(K00 - K99)	(L00 - L99)	(N00 - N99)
1	3 (2.7%)	9 (8.2%)	4 (3.6%)	4 (3.6%)	5 (4.5%)
2	10 (5.8%)	2 (1.2%)	7 (4.1%)	5 (2.9%)	4 (2.3%)
3	13 (3.9%)	3 (0.9%)	17 (5.1%)	16 (4.8%)	16 (6.7%)
4	10 (6.7%)	1 (0.7%)	9 (6.0%)	3 (2.0%)	10 (6.7%)
5	11 (5.3%)	7 (3.4%)	6 (2.9%)	6 (2.9%)	3 (1.5%)
Total	**47 (4.9%)**	**22 (2.3%)**	**43 (4.4%)**	**34 (3.5%)**	**38 (3.9%)**

Figure 7.3

Summary of Inpatient Care Characteristics on Admission and Discharge Perth & Kinross Community Hospital October 2000-November 2001



1 - Home alone (no care package)
2 - Home alone (care package)
3 - Home with carer -(no care package)
4 - Home with carer (care package)

Figure 7.4

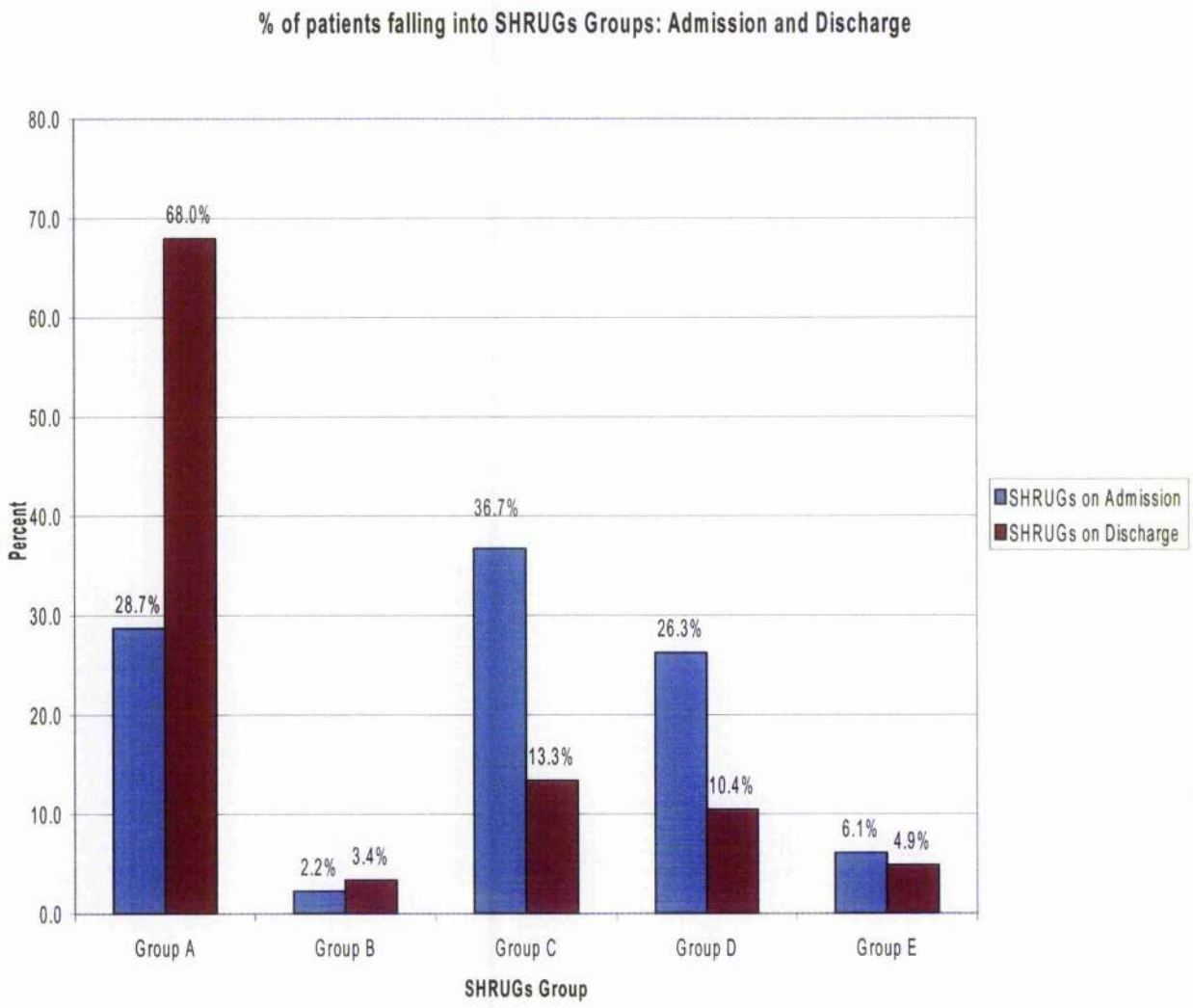

% of patients falling into SHRUGs Groups: Admission and Discharge
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Percent
68.0%
28.7%
2.2%
3.4%
36.7%
13.3%
26.3%
10.4%
6.1%
4.9%
Group A
Group B
Group C
Group D
Group E
SHRUGs Group
SHRUGs on Admission
SHRUGs on Discharge

Figure 7.5

The Number of Drugs on Admission and Discharge by Inpatients Admitted To Perth & Kinross Community Hospitals (n=973) October 2000-November 2001 (Blue Admission, Purple Discharge)

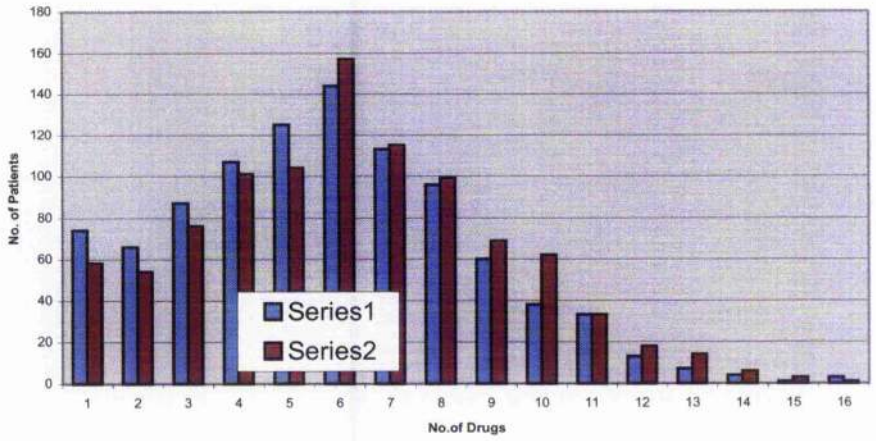


Table 7.6

Interventions Delivered in Perth & Kinross Community Hospitals October 2000-November 2001

Hospital	Xray	ECG	IV Antibiotics	IV Fluids	IV Chemo	Blood Transfusion
1	8	2	2	2	0	2
2	22	67	1	2	0	3
3	32	36	11	22	1	38
4	3	14	3	11	1	11
5	33	56	0	9	0	6
Total	98(10.1%)	185(19.0%)	17(1.75%)	46(4.8%)	2(<1%)	60(6.7%)

Oxygen Therapy	Nebuliser	S/C Fluids	Other
20	11	7	59
22	20	9	6
42	25	8	237
13	10	16	4
30	25	3	178
127(13.1%)	97(9.9%)	43(4.4%)	484

Table 7.7

The Number of Patients on Psychotropic Drugs on Admission to and Discharge from Perth & Kinross Community Hospitals October 2000-November 2001

	Admission	Discharge
Hypnotics/Anxitiolytics	216 (22.2%)	210 (21.6%)
Antipsychotics	49 (5.0%)	50 (5.1%)
Antidepressants	149 (15.3%)	147 (15.1%)
Antiparkinsonian	45 (4.6%)	43 (4.4%)

Table 7.8

Summary of Inpatient Characteristics Perth & Kinross Community Hospitals October 2000-November 2001

Number of patients		973
Males		366 (37.6%
Females		606 (62.3%
Mean Age		77.1 (SD14.59)
Mean duration of stay		14.5 days (SD19.15)
Median duration of stay		8.0 days
GP referral		73.50%
Consultant referral		26.60%
Would admission have had to occur if	Yes	67.60%
no GP bed available	No	32.40%
Reason for admission	Medical	52.60%
	Medical/Social	43.90%
	Social	3.50%

Table 7.9

Type of Discharge from Perth & Kinross Community Hospitals (n-968) October 2000-November 2001

Hospital	Planned No Package	Planned Original package	Planned Increased package	Planned New Package	Transfer	Death	Self Discharge
1	31	29	8	13	18	11	0
2	48	33	22	12	37	21	1
3	108	98	29	21	37	30	5
4	57	35	10	15	21	9	2
5	72	49	13	17	38	13	3
Total	**316(32.6%)**	**243(25.1%)**	**82(8.5%)**	**78(8.1%)**	**151(15.6%)**	**84(8.6%)**	**11 (1.1%)**

Table 7.10

Discharge Destinations from Perth & Kinross Community Hospitals (n=929) October 2000-November 2001

Hospital	Home Alone	Home Alone Package	Home Carer	Home Carer Package	Nursing Home	Residential Home	Transfer to NHS Acute Hospital
1	11	19	15	11	0	17	10
2	15	45	35	18	5	7	21
3	49	81	60	32	11	17	33
4	9	47	39	5	2	0	20
5	26	40	43	23	3	15	36
Total	110(11.8%)	232(24.9%)	192(20.6%)	90(9.79%)	21(2.3%)	56(6.0%)	120(12.9%)

Transfer to Another Community Hospital	Transfer Within Same Hospital	Patient Died	Other
3	5	11	0
0	5	21	2
2	0	30	3
0	1	9	1
1	0	13	1
6 (<1%)	11(1.2%)	84(9.0%)	7(<1%)

Table 7.11

Summary of Inpatient Care Characteristics on Admission and Discharge Perth & Kinross Community Hospitals October 2000-November 2001

	On Admission	On Discharge
Home alone (no care package)	14.60%	11.80%
Home alone (care package)	16.80%	24.90%
Home with carer (no care package)	20.60%	20.60%
Home with carer (care package)	6.50%	9.80%

Table 7.12

Reasons for Discharge Delay from Perth and Kinross Community Hospitals October 2000–November 2001

(1)	Awaiting residential/nursing home place (including funding)	20.5%
(2)	Awaiting new services to discharge home	17.6%
(3)	Family/relative problems	17.4%
(4)	Discharge procedures completed awaiting GP approval	11.8%
(5)	Awaiting completion of SW arrangements	10.3%
(6)	Arranging SW assessment	5.9%
(7)	Awaiting bed availability in other NHS hospitals	5.9%
(8)	Other	10.6%

Table 7.13

Characteristics of Inpatients According to Length of Stay

	Discharged <= 30 days			Delayed discharge > 30 days		
Number %	856	87.90%	(n=973)	115	11.80%	(n=973)
		25th centile	75 centile		25 centile	75 centile
Median age	79yrs	70	86	84	77	87
Median duration of stay	8 days	2	14	48	36	69
Males	326	38.10%	(n=856)	40	34.80%	(n=115)
Females	528	61.90%		75	65.20%	
Consultant referral	213	25.10%		44		
SHRUGS A on admission	257	31.30%		13	11.30%	
Care package on admission	275	32.10%		49	42.60%	
Carer	194	22.70%		33	28.70%	
Number Taking:						
Hynotics/anxitiolytics	180	21.00%		36	31.30%	
Anti psychotics	41	4.80%		6	5.20%	
Antidepressants	125	14.60%		22	19.10%	

Table 7.14

Results of Multiple Logistic Regression Modelling Given the Odds Ratio For Delayed Discharge Due to the Factors Specified

	Odds Ratio (95% Confidence Interval p-value)					
Factor	Univariate Analysis	p-value	Multiple Regression Based on Significant Univariate Factors	p-value	Final Regression Model	p-value
Age (+10 yrs)	1.4		1.34			1.33
	(1.17 to 1.60)	0	(1.10 to 1.64)	0.05	(1.10 to 1.61)	0
Females vs males	1.16					
	0.77 to 1.74)	0.49				
Referred by consultant	1.85		1.62		1.71	
	(1.23 to 2.78)	0	(1.06 to 2.49)	0.03	(1.13 to 2.61)	0
SIIRUGS A on admission	3.83		3.21		3.38	
	(2.07 to 7.09)	0	(1.72 to 6.01)	0	(1.31 to 6.30)	0
Social care package on admission	1.57		1.12			
	(1.06 to 2.33)	0.03	(0.73 to 1.70)	0.6		
Total no. drugs on admission	1.1		1.05			
	(1.03 to 1.17)	0.01	(0.97 to 1.13)	0.23		
Hynotics/anxiolytics on admission	1.71		1.55		1.74	
	(1.12 to 2.62)	0.01	(0.97 to 2.47)	0.07	(1.11 to 2.71)	0
Anti psychotics on admission	1.29					
	(0.56 to 2.94)	0.55				
Anti-depressants on admission	1.64		1.38			
	(1.01 to 2.66)	0.04	(0.82 to 2.31)	0.22		

Chapter 8

8 Discussion

8.1 Summary of findings

These studies represent one of the most detailed programmes of community hospital research ever undertaken. They are unusual in that they combine both a quantitative and a qualitative approach. They are grounded in the author's twenty years experience of working in, researching and managing Perth & Kinross community hospitals.

These studies have determined the contribution to patient care made by five community hospitals in Perth & Kinross. Over the three years of the study 32.4% of all general medical admissions, 35.5% of all those over 65, were discharged by community hospital practices were discharged locally. 76.1% of these discharges were under the control of the general practitioner. There was no statistically significant evidence that practices with community hospitals admitted more general medical patients or patients for specialist medical care than practices without such access.

Though the study has demonstrated no significant differences in referral rates between practices with and without access to community hospitals, it has shown however wide variations between individual practices. There was a highly significant association between high discharge rates and practice training status. There was a weaker association between proxy quality practice indicators such as minor surgery capability and low discharge rates. Reasons for these findings and their possible implications have been discussed.

The thesis contains the first in-depth qualitative study on why general practitioners admit patients to community hospitals. This study has succeeded in significantly increasing our understanding of this activity which is currently available to approximately 15% of United Kingdom general practitioners. The qualitative study has informed the data collecting instrument used in the prospective study thereby linking the three parts of the study.

Factors potentially influencing a general practitioner's decision to admit a patient to a community hospital have been identified. A decision making model has been developed suggesting how these factors might operate. Three primary influences, including the doctors capacity, the hospital capacity and the patient's preference were identified as key factors in determining whether a patient is likely to be admitted locally or not. Their importance seems to lie in that they come into play at an early stage in the decision making process. A further seventeen categories of secondary influences were identified, all potentially influencing the admission decision in more complex cases.

The 'model' that is presented has been generated from standard qualitative research methodology. The processes involved to generate the theory constructed have been rigorous, overt and supervised by an experienced researcher throughout. The strength of the theory generated lies in the explanatory power and the predictive ability to explain what might happen in given situations to patients potentially suitable to be admitted to community hospitals. It is recognised that this 'predictive ability' is not the same as generalisability, which one would expect from a quantitative theory.

In constructing the model from this study, the researchers have specified the context and conditions under which it operates. It is not suggested that a substantive theory (one

developed from the study of one small area of investigation and one specific population) has the explanatory power of a larger more general theory. It cannot, because it does not build in the variations or include the broad propositions of a more general theory. However though this theory relates firstly to the population from which it was derived it should, with further testing, have relevance to similar populations working in similar contextual frameworks.

The doctors in this study have adapted by recognising their limits as to what patients they can or cannot look after. Such limits are unique to each individual admitting doctor. The role of the doctor's comfort with the decision making process is highlighted as an important determinant in the process. The importance of the case specific interaction between the various factors has been highlighted and the complexity of the processes involved acknowledged. These processes are compatible with current thinking on complex systems. The theory described is also consistent with other published decision making models.

The prospective study has attempted to establish the acceptability, reliability and validity of a simplified data collection instrument for administration by community hospital charge nurses. In using this instrument for a period of twelve months in all five Perthshire community hospitals, a dataset, on 973 admission and discharge inpatient episodes has been collected. A detailed analysis of the multiple factors affecting a patient's journey from the community through the community hospital and back into the community again has been carried out.

This part of the study has shown that over 70% of community hospital admissions in Perth and Kinross are apparently appropriately treated and discharged home less dependent than on admission. It has identified deficiencies in the level of pre hospital social support and the input of the caring services. Possible reasons for these deficiencies are discussed and the question of matching local service to need is highlighted. Further questions concerning the coordination of health and social services are raised.

Multiple logistic regression was used to model the factors contributing to delayed discharge. Coveriates, which might affect discharge, were each considered in a univariate analysis. Those variables, which were significantly associated with delayed discharge, were included in a multiple logistic regression model. Not all variables included in this model remained significant because of the relationships between the explanatory variables. Backward stepwise regression was used to arrive at a final model which included age, consultant referral, provision of a care package and hypnotics/anxiolytics on admission.

The implications of the model and the complex social and medical factors involved are discussed.

8.2 Why Has There Not Been More Research into Community Hospital Function?

It can be said that one of the principle reasons may well be that those with the main vested interest in community hospitals, namely those that work in them, do not have the time or the resources to undertake such research.

The effectiveness of community hospital interventions are unlikely to be amenable to approaches such as randomised controlled trials. The services supplied comprise a complex

mix of uncontrollable independent variables embedded in both social as well as medical treatment activity. Patient's previous experience of community hospital care and the preadmission interpersonal relationships between patient and staff will play a significant but unquantifiable effect on the outcome of the admission. It is unlikely that such factors could be controlled in such a way to meet the requirements of a randomised controlled trial.

8.2.1 Opportunity for further Research

This study has demonstrated that both qualitative and prospective quantitative research can be undertaken successfully in Scottish community hospitals. However there are many areas of research requiring further study.

8.2.2 Further Research Questions

The qualitative study has generated an admission decision-making model, which requires to be used in different contexts to test its generalisability. Further research could be done to see if it might have validity out-with the community hospital context. Does it have relevance where GP's refer to other types of hospitals?

The cohort of patients identified through the prospective study provides enough information to serve as a useful dataset around which statistical modelling may be possible. Further work requires to be done to see whether models of illness severity incorporating diagnoses, social factors, dependency and drug load could be constructed.

These models would be of relevance to the care of the elderly in other situations. This study demonstrates the need for comparative studies on outcomes of care for similar

patients managed in different settings. Such studies have particular relevance for the development of intermediate care services. Such a multidimensional models of illness might facilitate the matching of patients in any potential cohort studies comparing care in different settings.

Considerable information has been collected on the drugs taken by this group of patients. Further research is required to investigate the interaction of the individual groups of drugs and whether they influence the outcomes of care. Broader questions on equity of access to health resources, the coordination of health and social care and community hospital governance and training also require further research.

Currently the possibility of obtaining grant funding to appoint a full time statistician to examine the prospective database more fully is under consideration.

8.3 Conclusions

8.3.1 Creating the Environment for Change

The development of an extended form of primary care services based on an expansion of community hospital infrastructure cannot happen without sustained financial and professional commitment from government. It also requires primary care in general, and general practitioners in particular, to accept the benefits for their patients and for their professional lives in developing community hospitals as a focus for intermediate care services.

This will require a significant redesign of services as well as real joint working between health and social services. It will also require a clear determination to match services to local need thereby ensuring appropriate access to services from those that will benefit

most. Only in this way will the potential benefits of such changes be demonstrable, not just in terms of patient care, but also in terms of redistribution of workload.

Creating such an environment requires major contractual changes for the general practitioner as well as increasing the medical support available to community hospital practices. It requires a systematic development of practitioner's knowledge and skills as well as inter-professional and inter-agency collaboration. The educational issues may well be best addressed in a multidisciplinary educational environment.

It is likely that increasingly there will be more nurse leadership within community hospitals. This will require medical input from those practitioners who are willing an interested to work within new working arrangements. Such developments will require a new culture of innovation. This could be furthered by:

1. A re-evaluation and exploration of the current criteria defining acute care. When options of location of care are being considered, the community hospital needs to be looked at objectively as one such option for selected patients.

2. The effects of shorter lengths of stay and advanced technology need to be considered. The service provided focuses more on the illness than the person. The effect of these advances on the patient's recovery needs more consideration.

3. There needs to be a range of services available to meet the needs of an aging population as society is undergoing major political, economic and cultural change. A range of options needs to be considered in all elderly care strategies. This study has

demonstrated a significant usage of these hospitals for acute geriatric assessment. If this is to be developed the relationships with the secondary care geriatric service need to be reviewed.

4. There is a need for community hospitals to be developed as resource centres matched against local health and social care needs.

5. There is a need for creative inter-professional collaboration centred on patient need.

6. If a truly integrated approach to health care is desired then there needs to be a commitment to develop multidisciplinary and multi-agency programmes that recognise the enormous demands and complexities of professional practice.

Inter-professional barriers need to be challenged and in some cases redefined. There is little evidence to suggest that local hospital services are an ineffective use of resources. It must be remembered that the social and economic cost to patients of not providing local services is very high. (Higgins 1993).

8.3.2 The Future Potential of Community Hospitals

Community hospitals must demonstrate their ability to provide a service appropriate to the needs of their local populations and crucially, one that meets the needs of the acute sector. This study has quantified the increasing use that a DGH is making of local community hospital resources. If the community hospital is to develop into a centre providing a wide range of community health resources then service shifts from acute units to community hospitals require careful planning.

Ramaiah concluded that for community hospitals to be part of the future health service planning process they must meet local needs as part of a range of quality patient services underpinned by a robust evidence base. (Ramaiah 1994). As thinking has moved on, it can now be argued that it should also be essential to consider the development of the nurse role in relation to community hospitals. The possibility of intermediate care specialists and nurse consultant roles in terms of admission and care are also potentially key elements around how the service might develop in the future. However, it has to be said that there appeared little support for the concept of intermediate care specialists from the general practitioners in this study.

These service shifts can only occur with clear and unambiguous organisational arrangements. These arrangements must be inclusive of all disciplines and professions. It will not happen without the co-operation of trained and interested general practitioners who can accept a redefinition of their role as well as an acceptance of the ensuing medical responsibility. It will require a clear strategic framework for development.

It is not surprising that without such a framework, encompassing not just contractual but also educational and professional development issues, there appears to be no general support among general practitioners for more widespread community hospital development. Paradoxically where such units do exist there is often considerable local general practitioner enthusiasm. (McKinlay 1991; Treasure & Davies 1990).

This lack of general support combined with a lack of significant research has contributed to the failure to develop any national planning policy incorporating community hospitals by

health authorities and health boards. This has arguably been the main reason for their present situation. (Grant 1989).

In the future community hospitals will depend on clinical leadership which is creative, adaptable and willing to engage across boundaries to develop new models of care. Traditional boundaries are no longer unassailable nor should they be. If boundaries are not challenged they simply become barriers behind which people as well systems atrophy and die. Clinical barriers can rapidly become the most destructive and divisive. They become the haven for the de-motivated and the unchallenged, they offer refuge to only the clinically ineffective and reactionary, they exist only as the antithesis of progress and development.

It can be argued that many community hospitals have existed behind such barriers. In many cases through the neglect by an NHS system which fails to understand the contribution they can make to the health care of the whole patient. Such neglect creates the circumstances in which barriers flourish and produce their destructive effects.

It will require an enormous effort of will, supported by the recognition that "whole person" care is of equal importance to "illness" modification in a balanced NHS, for community hospitals to achieve widespread recognition as a valuable and essential part of a "healthy" NHS. Maybe Pietroni's challenge is one that best encapsulates this dilemma when he asks '*Can the National Health Service afford to treat the whole patient rather than just the illness?*' (Pietroni 1991). A reply can best be made in the words of one respondent '*That's*

maybe where community hospitals will have their saving grace because they will provide something the district general hospital can't anymore and used to".

Chapter 9

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Appendix 10.1

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Appendix 10.2

Letter Inviting General Practitioners to Take Part in the Interview Study

Dr James A Grant

Telephone *01764 663527*
Fax *01764 664178*

"Hilden"
Western Road
AUCHTERARDER
Perthshire
PH3 1JJ

7th April 2000

«Title» «FirstName» «LastName»
«JobTitle»
«Company»
«Address1»
«Address2»
«City»
«PostalCode»

Dear

A Qualitative Research Study Into Factors Influencing Community Hospital Usage

I am writing to tell you about a research project we are initiating and also to seek your (paid) co-operation.

The community hospitals provide a valuable resource for the healthcare needs of rural Perthshire and wider Tayside. We know that in Perth and Kinross practices with community hospitals admit 25% fewer patients to acute district general hospitals and 80% fewer patients for geriatric assessment. However our knowledge about the decision making processes around their usage is extremely limited.

It is proposed to carry out in-depth interviews of a sample of General Practitioners who have admitting rights to local community hospitals in order to try and understand further the factors influencing there use.

These interviews, for the purposes of the research, will be strictly confidential, non attributable and presented in a form from which neither you, your practice nor your hospital could be identified. It is proposed that these interviews will last approximately one to one and a half-hours and be carried out at a mutually convenient time and place.

This study has been funded by the Scottish Home and Health Department and has been approved by the GP Sub committee and the ethical committee of the Health Board. In return for your input a fee of £30 has been negotiated.

If you are willing to be interviewed, you need do nothing and I will contact you at the appropriate time. If you would like to know more about the study, or have any concerns about taking part, please do not hesitate to contact me personally on the above number.

I do hope you will feel able to take part in this study. If however, you do not wish to take part, please let me know and you will not be troubled further.

Yours sincerely

DR J A GRANT
GENERAL PRACTITIONER – LEAD CLINICIAN PERTH & KINROSS LHCC

Appendix 10.3

Final Interview Guide

1. Can you describe for me the circumstances around a recent admission you have made to the community hospital?
    - Explore medical reasons (types of patients), social, logistical, patient preferences, past experiences, risk, multiple pathologies, continuity of care

2. Can you tell me where an admission has been made and subsequently went wrong?
    - Explore how, effect on subsequent admissions?

3. What makes you confident or alternatively anxious about admitting a patient to the community hospital?

4. It has been suggested that there is a certain type of doctor who actively uses a community hospital
    - Explore enjoyment, enthusiasm, workload, and finance.

5. How do you see the community hospital affecting your role as a general practitioner?
    - Explore training, attitudes,

6. How might it be done in the future?
    - Explore alternative approaches, time constraint.

Appendix 10.4

Definitions of Themes and Categories

***Primary Influences** – The core components that have to be in place if admission to a community hospital is to be considered.*

Hospital Capacity
Circumstances, actual or perceived relating to the receiving hospitals structure and processes, which influence, whether admission to the community hospital takes place.

Doctor Capacity
Pressures which influence whether or not the admitting doctor is willing to take on the added responsibilities of admitting this patient to the community hospital at this time.

Patient Preference
Views expressed by, or attributed to, the patent that materially influence the decision where and when to admit the patient.

***Secondary Influences** - Factors which were found to influence admission decisions by potentially generating comfort/discomfort in the admitting doctor.*

Professional Concerns

Problems with the Community Hospital
Perceived problems around the community hospital, which make the doctor reluctant to admit, or the patient reluctant to be admitted.

Problems with the District General Hospital
Perceived problems with district general hospital care, or it's response to the request for care, which make either the patient reluctant to be admitted or the doctor reluctant to admit.

Medical Uncertainty
Insecurity about what is going on medically with the patient.

Process of Care
The specific elements of care, including therapies and procedures in their community hospital which, may be either patient beneficial or potentially detrimental to care.

Support Systems
Peer, nursing or consultant support that might encourage or discourage local admission.

Training and Experience
Training and experience that influence the doctor's ability, or attitudes towards admitting patients to a community hospital.

Competence
Appropriate skill, knowledge and capability within the admitting doctor, which allows him to manage inpatient, care.

Peer Perception
When the admitting doctors behaviour is influenced by what their colleagues might think.

Personal Influences

Anxieties
Worries experienced by the admitting doctor when, for instance, an unsuccessful outcome is possible.

Attitudes
The way the admitting doctor reacts to the opportunity, or behaves towards the potential admission to the local community hospital.

Beliefs
Their view or opinion on the personal benefits or drawbacks of community hospital work.

Confidence
The self belief in the doctor that he/she is able to deal with the admission within the community hospital.

Control over Care
When the ability to direct the care of the patient is important to the admitting doctor and influences the decision to admit locally

Professional Motivators
Perceived benefits for the admitting doctor in terms of his professional life through the use of the community hospital.

Personal Motivators
Factors providing some non-professional gain or loss, which might influence the general practitioner. eg Finance.

Potential Benefits

The doctor's view of the gains achievable from patient admission to the hospital which will most appropriately meet the patient's needs.

More Appropriate Care in the District General Hospital
Belief that the care required is out with the competence or resources of the admitting doctor or the community hospital.

More Appropriate Care in the Community Hospital
Belief that the community hospital may more appropriate than the care of the district general hospital.

Appendix 10.5

Primary Influences

Doctor Capacity

Inclusive - an intuitive appreciation and understanding, a sensitivity to performance in relation to the admitting doctors perceived pressures which influence the decision to admit or not to admit to the community hospital .This will vary from circumstance to circumstance.

Exclusive - not concerning the intrinsic problems of hospital or patient.

Int 2 40
We are not superman

Int 2 49
You know the guidelines are there and we should try and follow them but we need to be flexible and sometimes we have to accept that we may in one particular set of circumstances behave differently from another set and the patient may influence that.

Int 2 71
It is very important that you are in touch and you're aware of your own limitations and your own weaknesses , weaknesses are not the same as limitations they are probably more to do with your ability to cope and knowing when you are tired and your decision is clouded.

Int 4 28
We are very good at piling extra work on ourselves and you know we have being doing it for a long time

Int 4 32
I mean if you are perfectly honest and you are snowed under and you know there is a bed sometimes you just send her to Perth I just think I cannot face another half hour or forty minutes admitting a patient .

Int 6 65
I realised that that was extra workload for me personally ---but I was just happy to take that on

Int 9 140
So I mean the routine of daily life has an effect on your decisions

Int 10 85
When you admit somebody to the cottage hospital you have to continue care which is part of the satisfaction but its also part of the onerous ongoing work that a cottage hospital admission involves.

Int 10 89
So I wouldn't go admitting lots of people to hospital because I know that's a hell of a lot more work.

Int 10 120
I can understand someone who say lives 4/5 miles away not wanting to use it as often as we do because of that very thing, it takes about 45 minutes to see one patient.

Int 13 28
Sometimes you could see it far enough.

Int 14 78
I think there is a danger that we take more and more onto our plate

Int 14 80
I think we all have our own thresholds and they may vary from day to day. They may also vary depending on how interested we are in a particular condition or how much commitment we feel to a particular patient.

Int 14 55
I think you have to recognise your limitations and know when to handover

Int 14 78
The thought of taking on something that might mean getting up in the middle of the night because you have lowered your threshold for admitting sicker patients and you know that's something to take into consideration.

Int 14 84
I think depending on how busy you are. Dare I say whether you have a deadline that you have to get away for, if you have to be at a meeting at half past six and your last call of the day is five to six someone who may or may not need admission.

Int 15 94
I don't want to take on more than I can handle

Int 16 43
If the workload increased significantly or substantially, we would have to say, I'm sorry you know we just can't do anymore because at the minute there's not a lot of slack left in our system

Int 19 46
It's the number of patients you have, if you've got five patients as we do at the moment and you go in and everybody takes 10-15 minutes to have a look at and write in the notes then that's a huge portion of your day

Int 19 62
I can admit somebody up to the cottage hospital and it would save me going to the house every day to review them. On the one hand it can reduce my workload because they would just admit them straight into Perth. On the other hand if the patient decides they don't

want hospital admission and the DGH is not keen to take them then they have problems at home

Int 19 70
I think the time factor is the thing with everybody. If you had built into your day an hour or something each day that you could go up to the hospital and that was time set aside and you could do your ward round and then you'd probably feel that you were doing a better job

Int 20 20
Sometimes you can bite off perhaps a bit more than you can chew but that's a case of knowing your limits and prioritising everything medically in each individual case

Int 20 25
I suppose it makes you think about your limits and what we can cope with. It makes you think about the boundaries and how soft they are and perhaps how pliable they are.

Int 20 79
It is a bit busier but it is not a huge burden. I mean it is really not a huge burden and once the patients are in and things are running and people are being monitored and going up and making decisions on their daily care, is not a huge burden.

Int 21 30
I think if you try and target it properly you actually reduce your workload.

You keep one step ahead of the illness and you can do that with patients.

If you can offer a few days rehabilitation in the hospital for somebody who is not doing well at home you can often prevent a much longer term acute admission

Int 21 114
I think that if a doctor has been on all weekend and its three o'clock on a Monday morning your resistance to admission is considerably lower than if it's sort of 4 o'clock on a Monday or something like that and you've just come back to work. I think some doctors are softer touches to patients than others.

Int 21 136
I think that there are people who have a lower threshold for admitting than others

Int 23 122
I just make a rod for myself for my own back the way I'm doing it,

Int 23 151
If today, this afternoon as duty doctor there was two folk that you'd admitted to the cottage hospital and I'm not in the mood to do it... I'll just send them down the road and I then don't have to do

Int 25 18
My time is a resource which sometimes I don't have a lot of to give to these people

Int 25 24
The only thing that would prevent me from doing it would be my own time other than availability of beds

Int 25 58
There will be decisions where it's almost the flick of a coin if I'm really busy and stressed or whatever then the coin goes to Perth

Int 25 64
It takes an enormous time to do it properly

Int 25 132
One of the factors undoubtedly of admitting is time, stress and am I giving the patients the optimal care. And I find that juggling act uncomfortable a lot of the time.

Int 26 80
A lot of patients who possibly should come to the Cottage Hospital, but as I say I suspect that if people were desperately honest at three o'clock in the morning that may not be an attractive idea to the practitioner involved.

Int 26 90
I think if you were terribly honest you could sway the decision either way depending on how you were feeling.

Appendix 10.6

Secondary Influences

Professional Motivators

Inclusive - factors related to the actual or perceived benefits the admitting doctor obtains in terms of his professional life through usage of the community hospital which may act as an incentive to continued or increased usage.

Exclusive - factors directly related to the patient or to tangible benefits a general practitioner might obtain through admitting to the community hospital

Int 1 61
If you know you have beds you know you can do this yourselves and just be done and dusted in a few days .

Int 1 75
I think it gives the patient more confidence that we know what we are doing and what we say can be trusted

Int 1 97
it gives me opportunities for further development

Int 2 89
I still get a buzz out of these things

Int 3 71
It does strengthen your ability, your therapeutic skills in certain areas .

Int 4 80
I think as doctors we like to be able to know what is happening to our patients all the time and that 's what makes it easier

Int 4 129
You don't really need to refer and I like to look after my patients myself

Int 4 121
I enjoy the more acute stuff , I enjoy casualty work and I enjoy inpatient management and medical problems

Int 6 119
There's certainly is enormous benefit and job satisfaction from my end from seeing the patient through

Int 6 135
I think from my angle I feel as if I have given something more to the patient and dealt with the acute thing

Int 7 94
It could be described in a lot of ways including talking your own game , being a big fish in a small pond or someone who's happy at the level they've found themselves

Int 8 56
That is the buzz I get out of general practice (p)

Int 8 62
The maintenance of the responsibility for that patient is probably at the route of the satisfaction gained

Int 8 90
Involvement with a cottage hospital may prevent disillusionment

Int 8 100
One has a sense of achievement that far outweighs the anxiety , the slight anxiety that one might have about remaining in control of the situation

Int 9 40
It allows us to do a bit more I suppose it keeps up some of our more acute skills as well.

Int 10 22
So in fact I suppose its an ease if you like of dealing with the patient. They are actually admitted to the hospital, there's at least two nurses to actually deal with the bathing and cleaning up nursing support and just to see that she was not going to come to any harm if just left there.

Int 10 91
I think again its because the continuity of care. It's the satisfaction I suppose that you have of looking after people even when they are moderately unwell. I mean if every time you had to ship folk off with various things like that then I suppose you may become a sort of be a clerk

Int 10 93
You've got some sense of purpose because you are using a bit more of your skills

Int 10 93
Its not just about putting some drips up or not that we do that very often because we don't have a lot of monitoring. I think its also contact with nursing staff and other staff in the hospital who are helping to share in that.

Int 11 11
I think it is also incredibly satisfying to work with nurses

Int 11 112
Its fulfilling in terms of two things, patient satisfaction and as a subset of that relative satisfaction .

Int 11 119
I think it is great thing working in a team , there is a tremendous buzz working in a team that is working well.

Int 11 125
It is the professional satisfaction . I find my work at the cottage hospital professionally very satisfying

Int 12 108
The challenge of it. The continuing personal care.

Int 12 135
I think you can keep up skills that you would otherwise lose. You have contact with professionals you otherwise might not have.

Int 13 24
It's professional satisfaction I think. Really it's adding another dimension to your work I think. It's truly a variety.

Int 13 76
it is so much easier it you've actually been looking after them in the hospital as well and you know perfectly well what the home situation is going to be like and you've married the two up nicely

Int 14 32
It just allows you to be a much more complete doctor

Int 14 72
.I would say that it just makes you a much more complete general practitioner. It gets you out of trouble sometimes, whether if you didn't have it you would have to pass on that responsibility to the hospital. It allows you to see many of your particularly elderly patients care through to the end and I think that's quite important to a lot of the elderly patients. It adds to your job satisfaction,

Int 18 54
Well it is good for me because it gives you a bigger variety of things medically that you can do.It keeps you more knowledgeable about extended care so we have got extra training in palliative medicine which, that seems to change pretty often so that is useful to know

Int 18 70
You get sort of relative feedback--------there is more of a community involvement which makes your work quite a bit easier and if you have sorted somebody out and you get to know them and they get to know you and you get to know them when they are not all that ill so it makes it easier once they become ill

Int 20 29
I don't know, it feels more satisfying when a patient is in, you feel you are using resources well and the patient is happy.

Int 20 49
I must admit I love admitting people up there. I can see the patients are quite relieved they are not going into the big hospital whichever it is, Perth, Ninewells or Stirling.

Int 20 65
it's not an easy way out but it is an easy way to get quick results I suppose.

Int 25 70
Oh I still enjoy my hospital work but that's because I can .. if you like.. I can limit it

Int 26 50
It makes it easier from the point of view that the whole thing I think is in your hands. And when you have control over something.. personal control over something I think it's easier to deal with.

Appendix 10.7

A List of Themes and Codes Generated From the Study on the Decision Making Around Admissions to Community Hospitals

The number in the parenthesis indicates number of sections of text coded

Themes	Codes
A. Primary Influences	
	Doctor Capacity (46)
	Hospital Capacity (8)
	Patient Preference (18)
B. Secondary Influences	
1 Professional Concerns	Anxieties (22)
	Medical Uncertainty (10)
	Process of Care (23)
	Support Systems (28)
	Peer perception (14)
	Problems with the community hospital (11)
	Problems with the district general hospital (21)
2 Personal Influences	Attitudes (22)
	Beliefs (16)
	Control over Care (12)
	Confidence (23)
	Competence (10)
	Training and Experience (12)
3 Potential Benefits	Professional Motivators (45)
	Personal Motivators (11)
	More appropriate care in the community hospital (31)
	More appropriate care in the district general hospital (5)
C. Non Model Codes	
	Development Opportunities (33)
	General practitioner opinion (11)
	Interesting miscellaneous (28)

Appendix 10.8

Data Collection Instrument –Prospective Study.

Date Form 1

Information and Statistics Division **In Confidence** Study No._____
Scottish Health Service

Hospital Name _____
Location Code | | | | |

Patient Identification:

CHI No. | | | | | | | | | | |
Sex |
Registered GP | | | | | |
GPPC (GP responsible for hospital care) | | | | | |
Admitting GP (Locum Code) | | | | | |
Consultant Input Prior to Admission |
If no CH bed would you have admitted to DGH |
Consultant Code | | | | | | |

Admission: **To be completed by Charge Nurse/GP**

Admission Date | | | | | | |
Deferred |
Referred by |
Type of admission |

Admission/Transfer From |
Transfer From (location) |
Who Contributes to Care at Home |

Reason for Admission |

Intended Type of Care |

MEDICATION

ON ADMISSION	DURING STAY

During Stay received intervention from: | | | | | |

Type of Care Provided During Stay | | | | |

Diagnoses:

Main Diagnosis Treated During Stay	Other Diagnoses/Problems/Social Factors

Discharge Record:

Discharge Date	
Type of Discharge	
Discharge/Transfer to	
Transfer to Location	
Date Ready for Discharge if Delayed	
Reason for Delay in Discharge	
Who Will Contribute to Care at Home	

Medication on Discharge

Appendix 10.9

Code List for Data Collection Instrument.

CODE LIST - Admission & Discharge Information – Data From 1

Patient Identification

Gender	
01	Male
02	Female
Consultant Input Prior to Admission	
01	Yes
02	No
If No CH Bed Would You Have Admitted to DGH	
01	Yes
02	No

Admission

Deferred	
01	Yes
02	No
Referred By	
01	GP
02	Consultant
Type of Admission	
01	Planned – first
02	Planned – readmission
03	Transfer/stepdown
04	Assessment
05	Other accident/injury
06	Medical emergency
07	Can't Cope
08	Anticipatory
Reason for Admission	
01	Medical
02	Social
03	Both
Admission/Transfer From	
16	Patient's home – living alone without care package
17	Patient's home – living alone with care package
18	Patient's home – living with spouse or partner without care package
19	Patient's home – living with spouse or partner with care package
20	Patient's home – living with relatives or friends without care package
21	Patient's home – living with relatives or friends with care package
04	Nursing Home
05	Residential Home
06	Hospice

07	Holiday Accommodation
08	Other Temporary Accommodation
09	No Fixed Abode
10	Public Place – street, pub, library
11	Transfer from NHS Acute Hospital
12	Transfer from other Community Hospital
13	Transfer from Private Hospital
14	Transfer within same Hospital
99	Other (Please Specify)

Who Contributes to Care at Home	
01	GP
02	Health Visitor
03	District Nurse
04	Physiotherapist
05	Occupational Therapist
06	Community Psychiatric Nurse
07	Care Manager
08	Carer
09	Specialist Nurse (Please Specify)
10	Speech & Language Therapist
11	Dietician
12	Chiropodist
13	Home Help
14	Meals on Wheels
15	Social Day Care
16	Day Hospital Care
Intended Type of Care	
01	Acute Medical
02	Assessment
03	Rehabilitation
04	Investigation
05	Palliative Care
06	Post-operative Care
07	Radiotherapy/Chemotherapy
08	Respite Care
09	Self-medication Training
20	Terminal Care
21	Review of Medication
99	Other (Please Specify)
During Stay Received Intervention From	
01	GP Documented Intervention
02	Specialist Consultant (Please Specify)
03	Nurse
04	Specialist Nurse (Please Specify)
05	Occupational Therapist
06	Physiotherapist
07	Speech & Language Therapist
08	Dietician
10	Podiatrist

Type of Care Provided During Stay	
01	X-ray
02	ECG
03	IV Antibiotics
04	IV Fluids
05	IV Chemotherapy
06	Blood Transfusion
07	Oxygen Therapy
08	Nebuliser
09	Subcutaneous Therapy
99	Other

Discharge

Type of Discharge	
04	Planned discharge without package of care
05	Planned discharge with original package of care
06	Planned discharge with increased package of care
07	Planned discharge with decreased package of care
08	Planned discharge with new package of care
09	Transfer
02	Self discharge
03	Death
Discharge/Transfer To	
16	Patient's home – living alone without care package
17	Patient's home – living alone with care package
18	Patient's home – living with spouse or partner without care package
19	Patient's home – living with spouse or partner with care package
20	Patient's home – living with relatives or friends without care package
21	Patient's home – living with relatives or friends with care package
04	Nursing Home
05	Residential Home
06	Hospice
07	Holiday Accommodation
08	Other Temporary Accommodation
09	No Fixed Abode
10	Public Place – street, pub, library
11	Transfer to NHS Acute Hospital
12	Transfer to other Community Hospital
13	Transfer to Private Hospital
14	Transfer within same Hospital
15	Patient Died
99	Other (Please Specify)
Reason for Delay in Discharge	
11	Awaiting Commencement/Completion of post-hospital social care assessment
12	Awaiting agreement of senior practitioner; post-hospital social care assessment completed
21	Awaiting restart services to discharge home
22	Awaiting new services to discharge home
24	Awaiting Residential/nursing home
75	Awaiting funding for residential/nursing home place availability
25	Awaiting completion of Social Care arrangements
31	Awaiting commencement/completion of post-hospital health care package
42	Awaiting bed availability in other NHS hospital/speciality/facility
43	Awaiting bed availability in hospice
44	Awaiting availability of transport
45	Multidisciplinary discharge procedures completed and awaiting medical approval
13	Disagreement about Social Care recommendations between Social Work and Health Care Services
32	Disagreement about Health Care Arrangements between Social Work and Health Care Services

61	Internal Family dispute issues
62	Disagreement between patient/carer and Health Services
63	Disagreement between patient/carer and Social Work
71	Patient Exercising Statutory Rights of Choice
73	Family/relatives arranging care.
74	Other patient/care/family related reason

Who Will Contribute to Care at Home	
01	GP
02	Health Visitor
03	District Nurse
04	Physiotherapist
05	Occupational Therapist
06	Community Psychiatric Nurse
07	Care Manager
08	Carer
09	Specialist Nurse (Please Specify)
10	Speech & Language Therapist
11	Dietician
12	Chiropodist
13	Home Help
14	Meals on Wheels
15	Day Hospital Care
16	Social Day Care

Appendix 10.10

SHRUGs Dependency Instrument.

Information and Statistics Division **CLERICAL** Data Form 2

In Confidence **ACUTE**

Perth & Kinross Inpatient Study **Patient's Name**

Hospital Record ACUTE					**Census day=**
Activities	Dependency Score (please record date)				
	Week1	Week2	Week3	Week4	Discharge Wk
Date					
1. Feeding					
2. Toileting					
3. Transferring					
4. Needs for special care					
5. Clinically complex treatments					
6. Behaviour					
Dependency Level					

Note: Dependency Level will be completed by ISD

Hospital Record MAIN Medical Diagnoses Treated					**Census day=**
	Activity Record (Active/Inactive)				
	Week1	Week2	Week3	Week4	Discharge Wk
Date					

* **If patient is discharged before week 4, please indicate.**
If discharged after Wk4, please indicate the week of discharge in the appropriate column

Appendix 10.11

Scottish Health Resource Utilisation Groups (SHRUGS) Resource Grouping

Shrugs Group	Description
A	Low dependency, no behavioural difficulties
B	Low dependency; with behavioural difficulties
C	Moderate dependency; no need for special care or clinically complex treatment
D	Moderate dependency; with need for special care and/or clinically complex treatment or high dependency, no need for special care or clinically complex treatment.
E	High dependency; with need for special care and or clinically complex treatment.

Appendix 10.12

Internal Consistency Response for Ten Principal Prospective Data Instrument Variables (%)

Variable	% Consistency
Patient referred by:	94.9
Admission/Transfer from:	91.3
Who contributes to care at home	55.3
Reason for admission	34.9
Type of admission	67.9
Intended type of care	74.1
Main diagnosis on admission	58.1
Social diagnosis on admission	44.9
Type of care provided	73.3
During stay patient received care from	96.6
Overall level of consistency	69.1

Appendix 10.13

Publications Associated With This Thesis

1. "Contribution of GP Hospitals in Scotland"
   J A Grant, BMJ: 1984 Vol 288: 1366 – 1368

2. "Casualty & Surgical Services in Perthshire GP Hospitals"
   J S J Blair, J A Grant, et al. JRCGP 1986 Vol 36; 359-363

3. "Community Hospitals – Time to Come off the Fence"
   J A Grant, JRCGP June 1989 Vol 39. 323

4 "Community Hospitals Preparing for the Future"
   Co-author JRCGP Occasional paper 42. 1990

5 "The Management of Suspected Myocardial Infarction by Scottish GPs with Access to Community Hospitals"
   R Liddell, J Rawles, J A Grant, JRCGP August 1990 Vol 40 337, 318-322

6 "Medical Students and Extended Attachments in General Practice and Community Hospitals"
   J A Grant, A Ramsay, J Bain. Medical Education November 1997

7 "A Three Year Observational Study of Patients, Practices and Resource Use when Community Hospital Beds are available"
   J.A.Grant P. Donnan, In press.

8 "Why do General Practitioners admit Patients to Community Hospitals"
   J.A.Grant J.S.Dowell In press

9 "A Population Study of Predictors of Delayed Discharge in Community Hospitals"
   J.A.Grant L.S.Murray In preparation

International Conferences

Why do General Practitioners admit Patients to Community Hospitals?"
J.A.Grant J.S.Dowell

Presented at the 8th International Conference on Qualitative Research, Alberta, Canada - April 2002.